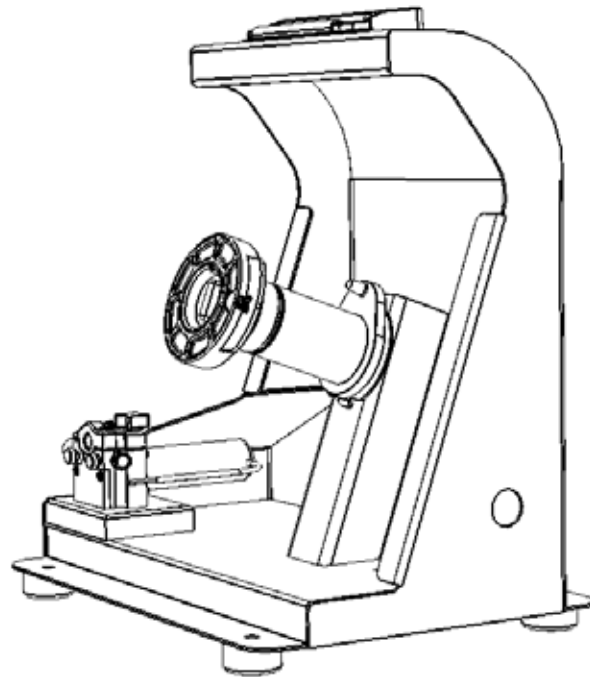


HELIX[®] WF20B Wire Feeder

For use with machines having Code Numbers: **703xx**

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[®]
ELECTRIC

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• World's Leader in Welding and Cutting Products •

• Sales and Service through Subsidiaries and Distributors Worldwide •

Cleveland, Ohio 44117-1199 U.S.A TEL: 216.481.8100 FAX: 216.486.1751 WEB SITE: www.lincolnelectric.com

⚠ 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.

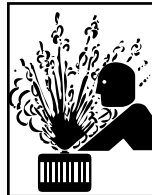
1.d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

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.

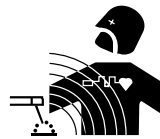


1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

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.



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.

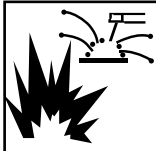


- 4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.
- 4.b. Use suitable clothing made from durable flame-resistant material to 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 within applicable OSHA PEL and ACGIH TLV limits 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. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.
- 5.c. 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.d. 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.e. 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.f. Also see item 1.b.



WELDING and Cutting 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.
- 6.i. Read and follow NFPA 51B "Standard for Fire Prevention during Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, Ma 022690-9101.
- 6.j. Do not use a welding power source for pipe thawing.



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.

Refer to <http://www.lincolnelectric.com/safety> for additional safety information.

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. Éviter 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 reçoit 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 soleil, 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 fumées 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 châssis 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 débarrasser à l'interrupteur à la boîte de fusibles.
4. Garder tous les couvercles et dispositifs de sûreté à leur place.

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!

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

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**. Choose "Support" and then "Register Your Product". 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**.

TECHNICAL SPECIFICATIONS HELIX® WF20B Wire Feeder.....	A-1
Safety Precautions.....	A-2
Proper handling.....	A-2
Operation.....	A-2
HELIX® WF20B Wire Feeder.....	
A-3	
Basic Components.....	A-3
Body.....	A-3
Clamping Mechanism.....	A-3
Torch Motion Assembly.....	A-3
Cable Assembly.....	A-4
Wire Feeder.....	A-4
WF20S Wire Feeder.....	A-5
WF20B Bench Wire Feeder.....	A-5
Wire Installation.....	A-6
Clamp Shoes.....	A-7
Clamp Shoe Installation.....	A-7
Clamp Shoe Removal.....	A-8
Weld Head Positioning.....	A-8
Weld Head Installation.....	A-8
Weld Head Setup.....	A-9
Wire Feed.....	A-9
Tungsten Placement.....	A-9
Weld head Position.....	A-9
Safety Precautions.....	B-1
Basic Information.....	B-1
Wire Feed.....	B-1
Accessories.....	C-1
Torch Accessories.....	C-1
Wire Feed Accessories.....	C-1
Maintenance.....	D-1
Maintenance Schedule.....	D-1
Weekly.....	D-1
Monthly.....	D-1

TECHNICAL SPECIFICATIONS HELIX® WF20B WIRE FEEDER

Product HELIX® Bench Wire Feeder Product Number K52097-2			
Input Power		24 VDC	
Input Watts			
Input Amps			
For Machines		Kxxxx HELIX® C863 Weld Head	
		Kxxxx HELIX® C663 Weld Head	
		Kxxxx HELIX® C450 Weld Head	
		Kxxxx HELIX® C238 Weld Head	
Wire Feed Options		Bench Feeder 10 lb - 44 lb	
Wire Feed Speed		10-140 ipm (25.4 - 355.6 cmpm)	
Wire Sizes		0.023" (.584mm) - 0.045" (1.143 mm)	
Physical Dimensions			
Height (handle to top)	Width (widest point)	Depth (torch tip to back)	Weight
Temperature Ranges			
Operating Temperature Range See Power Wave Settings		Storage Temperature Range See Power Wave Settings	

Explanation of Symbols



Electric Shock Warning



Clutch Lock



Clutch Unlock

Safety Precautions

Read entire manual before installation or operation.



Electric shock can kill

- Only qualified personnel should perform this installation.
- Turn the input power OFF at the disconnect switch or fuse box before working on this equipment

turn off the input power to any other equipment connected to the welding system at the disconnect switch or fuse box before working on the equipment.

- Do not touch electrically hot parts.
- Always connect the power supply grounding lug to a proper safety (Earth) ground.

Proper handling

The HELIX® WF20B Wire Feeder is only meant to be picked up and supported by the handle. Only attempt to install wire while the weld head is on a stable level surface.

Avoid lifting the wire feeder while wire spool is installed.

Keep machine dry. Shelter from rain and snow. Do not place on wet ground or in puddles.

Always place the wire feeder on a steady, flat level surface when not in use.

Operation

Read entire manual before operation.

Do not operate in wet, damp or moist areas.

Required Tools

Required tools to make adjustments while welding:

Required tools for all user authorized repairs:

HELIX® WF20B Wire Feeder

Installation of the weld head, consumables and variable size components will be discussed in this section. Removing and replacing of maintenance items, such as motor and components, will be discussed in the troubleshooting section.

The WF20B commonly referred to as a bench wire feeder, see **FIGURE 1 - WF20B Wire Feeder** is a larger capacity wire feeder designed for use with the HELIX® C Series of weld heads. With this feeder the operator can use wire spools from 10lbs to 44 lbs. The wire feeder can be used with wire from size .023" to .045". This feeder, while still portable, is designed for more stationary units. The benefit of the bench wire feeder with a larger wire spool capacity is that the welder is able to go longer between changing out the wire spool.

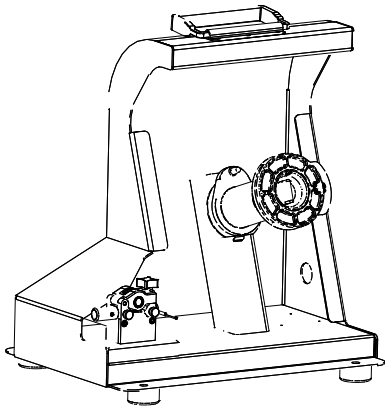


FIGURE 1 - WF20B Wire Feeder

Wire Spool Installation

To install welding wire squeeze the hub key to disengage the hub nut, see **FIGURE 2 - Hub Key**.

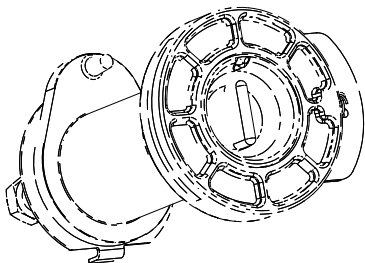


FIGURE 2 - Hub Key

With the hub removed the wire spool can be removed or replaced. Line the spool up with the center positioning spool when installing. Be sure to install the wire spool with the wire feeding directly into the wire guide drive rolls, see **FIGURE 3 - Bench Wire Feed Direction**.

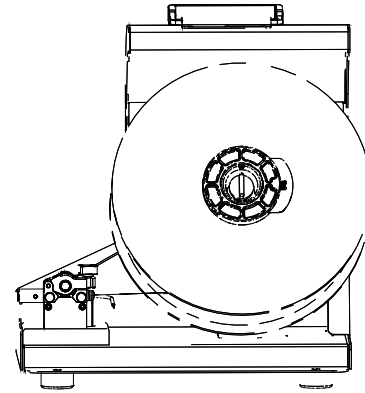


FIGURE 3 - Bench Wire Feed Direction

Refer to **FIGURE 4 - Wire Feeder Components on page 4** for locations of the different items in the wire feed mechanism.

Wire Installation

For both the bench and suitcase wire feeder, to install the wire, disconnect the wire guide tip from the feed mechanism at the torch head. This will prevent the wire from jamming or puncturing the teflon lining. Once the wire is fed through the drive rolls it can be fed electrically using the pendant by turning the wire feed on. With the wire feed on you will see the drive roll begin to rotate. Once the drive roll is rotating feed the end of the wire into the inlet guide. Verify that the end of the wire is cut cleanly.

If the wire does not feed then it may be necessary to tighten the wire tension knob, see. Make sure not to over tighten, which could result in undue wear on the drive wheel and wire motor.

Feed the wire through the inlet guide until it is through the drive rolls. The wire can be fed through the drive rolls mechanically or electrically. For electrical feed set the wire to feed and the drive rolls will engage the wire pulling it through. To mechanically feed the wire unthread the hex head bolt on the wire feeder. This will disengage the top drive roll. Feed the wire through the wire guide inlet and out the outlet. Close the top drive roll back down and tighten the bolt. The wire is now ready to be fed electrically.

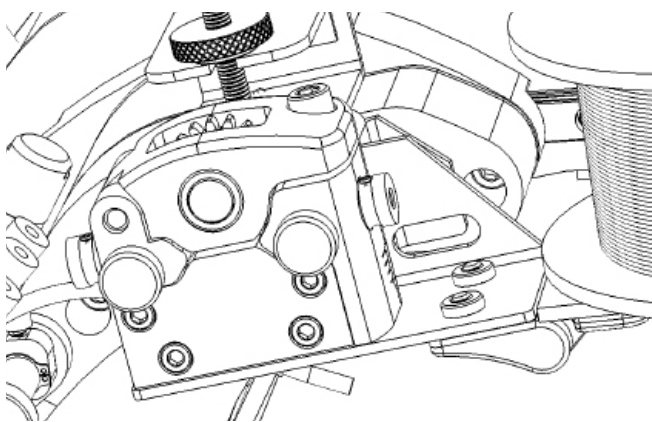


FIGURE 4 - Wire Feeder Components

Drive Roll Installation & Removal

Before installing wire, verify that the proper drive rolls are installed. To check drive roller sizes, remove the cover plate from the front of the wire feed unit with a 9/64" hex key, see **FIGURE 2 - Hub Key**. The wire diameter is stamped on the side of the lower drive roll. Verify that the drive roll size is the same for the upper and lower drive rolls.

Drive rolls sizes for the on board wire feeder are 0.023 mm through 0.045 mm.

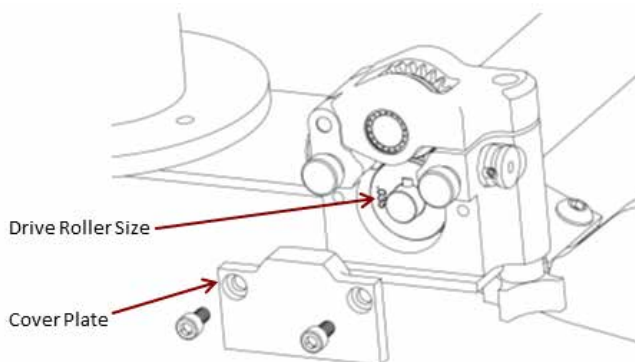


FIGURE 5 - Lower Drive Roll Cover Plate

If the sizes are not the same, or to change the drive rolls, start by unthread the hex head bolt. Rotate the drive roll until the set screw, see **FIGURE 6 - Set Screw** is exposed and loosen with a .050" hex key.

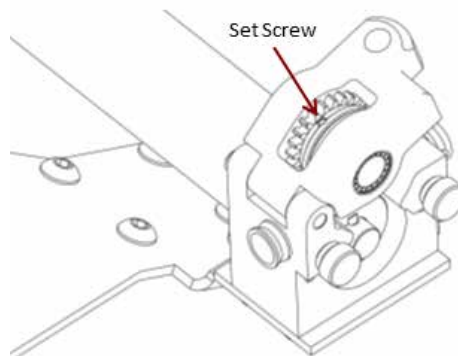


FIGURE 6 - Set Screw

With the set screw loose slide the shaft out releasing the upper drive roll. There is an access hole on the back of the wire feed where you can insert the 7/64" hex key to push the shaft out see **FIGURE 7 - Drive Roll Shaft**.

Remove the upper drive roll from the assembly. Insert the desired drive roll back into the slot and insert the shaft through the bearings and drive roller. The shaft is notched to provide a seat for the set screw. Be sure to insert the shaft so that the notch meets up with the set screw. Tighten set screw on upper drive roll.

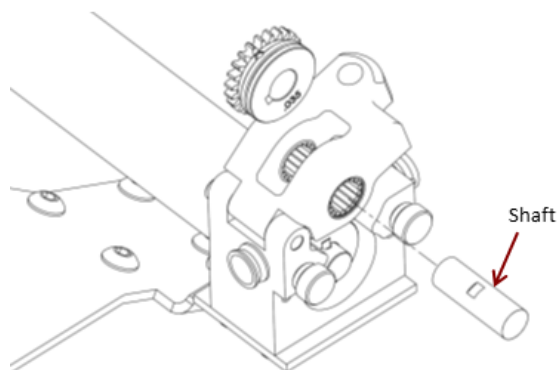


FIGURE 7 - Drive Roll Shaft

Change Lower Drive Roll

With the top still pivoted away, drive the wire feed motor until the set screw for the lower drive roll is exposed. Loosen the set screw see **FIGURE 8 - Lower Drive Roll Set Screw**.

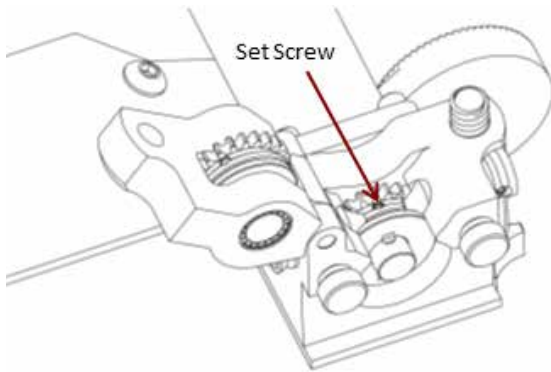


FIGURE 8 - Lower Drive Roll Set Screw

Drive the wire feed motor again until the motor key is at the top of the rotation see **FIGURE 9 - Motor Key**. Slide the lower drive roll off the front of the motor shaft. Motor key is secured by lower drive roll. Take care not to lose the motor key when removing lower drive roll.

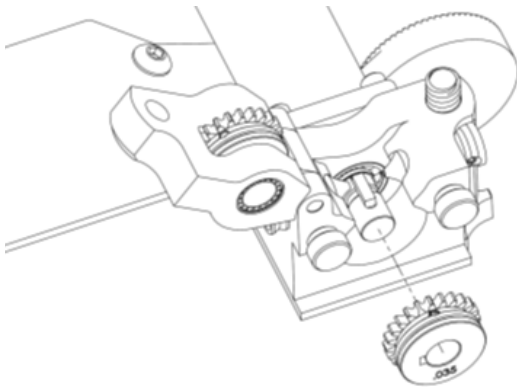


FIGURE 9 - Motor Key

Ensure that the motor key is in place. Slide the correct drive roller back onto the motor shaft. Drive the wire feed motor until the set screw is accessible. Tighten the set screw. Attach the cover plate back to the front of the wire feed unit and adjust the tension knob back to the proper setting.

External Cable Installation

The control cable attaches from the front of the wire feeder to the weld head.

The wire liner attaches from the front of the wire feeder to the wire feed mechanism on the C Series weld head. See **FIGURE 10 - Cable Placement** for cable locations.

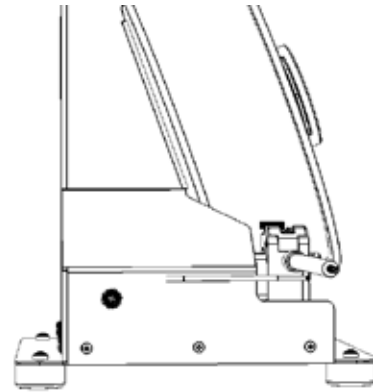


FIGURE 10 - Cable Placement

Safety Precautions

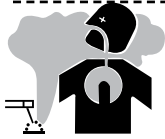
Read and understand this entire section before operating the machine.

WARNING



ELECTRIC SHOCK CAN KILL.

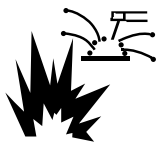
- Only qualified personnel should perform the installation.
- Turn the input power **OFF** at the disconnect switch or fuse box.
- Do not touch electrically live parts or electrode with skin or wet clothing.
- Insulate yourself from work and ground.
- Always dry insulating gloves.
- Read and follow “Electric Shock Warnings” in the Safety section if welding must be performed under electrically hazardous conditions such as welding in wet areas or on or in the work pieces.



FUMES AND GASES

can be dangerous.

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



WELDING SPARKS

can cause fire and explosion

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



ARC RAYS

can burn.

- * Wear eye, ear and body protection.

Refer to control system manual for all operational instructions.

Basic Information

The HELIX® WF20B Wire Feeder is a precision GTAW (TIG) wire feeder specifically designed to work with the APEX™ 2100 Orbital Control System and the C Series Weld Heads.

The HELIX® WF20B or bench wire feeder is one of the wire feeding options for the C Series weld heads. This weld head, while portable allows for the option of a heavier wire spool that is ideal for a stationary weld head.

The powerful precision motor in the wire drive unit is recommended at 15 foot from the weld head. The unique chassis design protects the wire from incidental dirt, dust and debris but it is recommended that the wire feeder be placed in a location that will minimize any and all wire contaminates.

Observe additional Safety Guidelines detailed in the beginning of this manual.

Accessories

Wire Feed Accessories

Bench Wire feeder

GTAW wire feeder for precision wound wire up to 44lb.
Standard lincoln hub. This feeder model is used for
larger wire spools where portability is not required.

External Wire Feeder	
WF20B (Bench Feeder)	K52097-2
WF20B K52097-2	
Inlet/Outlet Guide Size	Part Number
0.023"	KP52115-023
0.030 - 0.035"	KP52115-035
0.040 - 0.045"	KP52115-045
Wire Feed Drive Roll Set	
Wire Feed Drive Roll Set	Part Number
0.023"	KP52079-023
0.030"	KP52079-030
0.035"	KP52079-035
0.040"	KP52079-040
0.045"	KP52079-045
Wire Liner	
Wire Liner	Part Number
0.023 - 0.035"	KP52111-035
0.040 - 0.045"	KP52111-045
Control Cable	
Control Cable	S29099-001
Drive Kit	
Drive Kit	S29099-002

Maintenance

The HELIX® WF20B Wire Feeder is designed for trouble free operation and normally requires minimal preventive care and cleaning. This section provides instructions for maintaining user serviceable items. The suggested repair procedure for all user serviceable items is to remove and replace defective assemblies or parts. If user and/or service personnel are not familiar with electrical and electronic equipment the product should be returned to the factory or serviced by factory authorized representatives for service and/or repair.

Maintenance Schedule

The maintenance schedule is suggested as a guideline for proper system maintenance. More stringent maintenance requirements may be required depending on the work being performed and the requirements of the customer for whom the work is performed. All maintenance schedules are based on a 40 hour work week.

Suggestions: XXX

Wiring Diagram

HELIX® WF20B Wire Feeder



Dimensions

HELIX® WF20B Wire Feeder



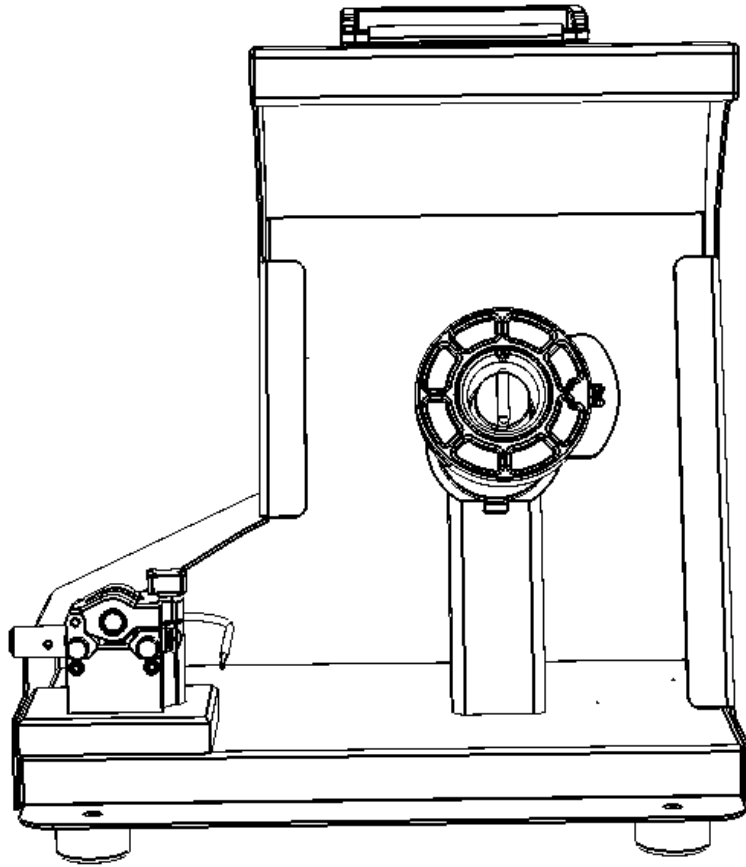
PARTS LIST FOR

HELIX[®] WF20B WIRE FEEDER

This parts list is provided as an informative guide only.

It was accurate at the time printing. These pages are only updated on the Service Navigator DVD and in Lincoln Electric's official Parts Book (BK-34).

ILLUSTRATION OF PARTS



HELIX® WF20B Wire Feeder



HELIX[®] WF20B Wire Feeder

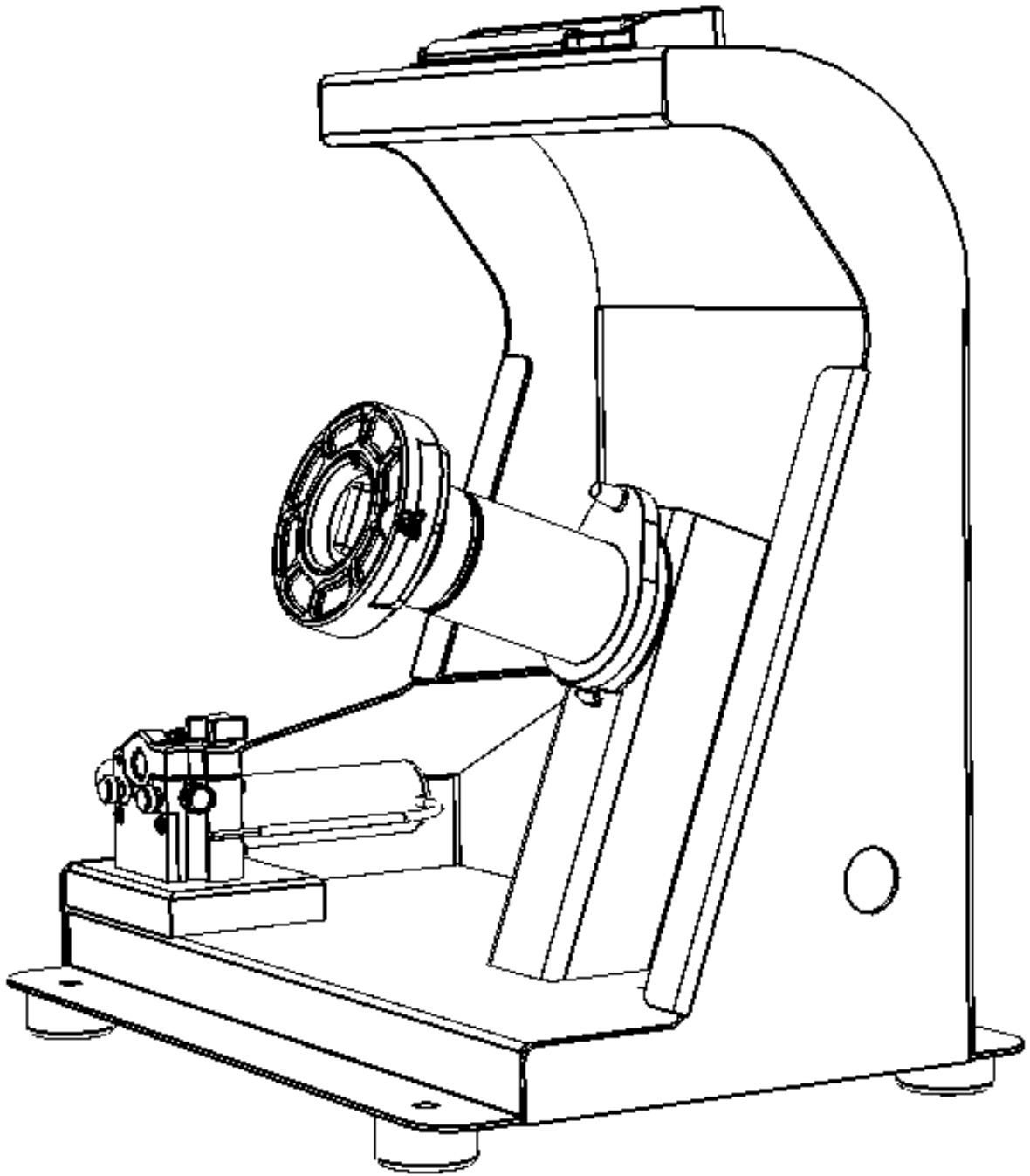
For Code:

Do not use this Parts List for a machine if its code number is not listed. Contact the Service Department for any code numbers not listed.

Use the illustration of Sub-Assemblies page and the table below to determine which sub assembly page and column the desired part is located on for your particular code machine.

Sub Assembly Item No.									
SUB ASSEMBLY PAGE NAME 	Hub Spool	Wire Feed Mechanism	Miscellaneous Parts	Cable Assembly					
PAGE NO. CODE NO.									
7030X									

Hub



HELIX® WF20B Wire Feeder

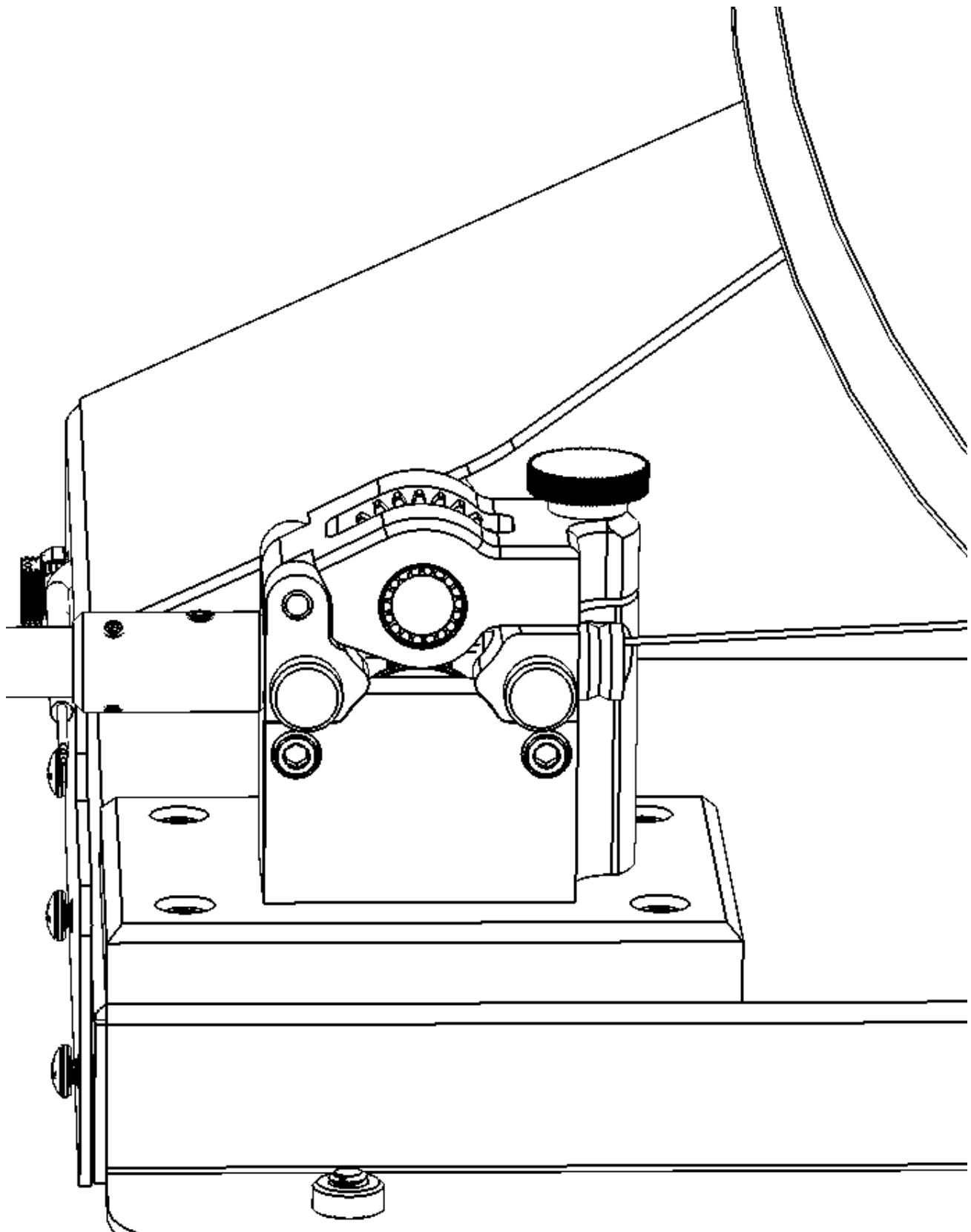


Indicates a change in this printing.

Use only the parts marked "x" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	C450 Body Assembly Belt Package	S29098-402										
2	Idler Gear Kit	S29098-004										
3	Clamp Spring Kit	S29098-006										
4	Clutch Slider Assy	S29098-005										

Wire Drive Mechanism



HELIX® WF20B Wire Feeder

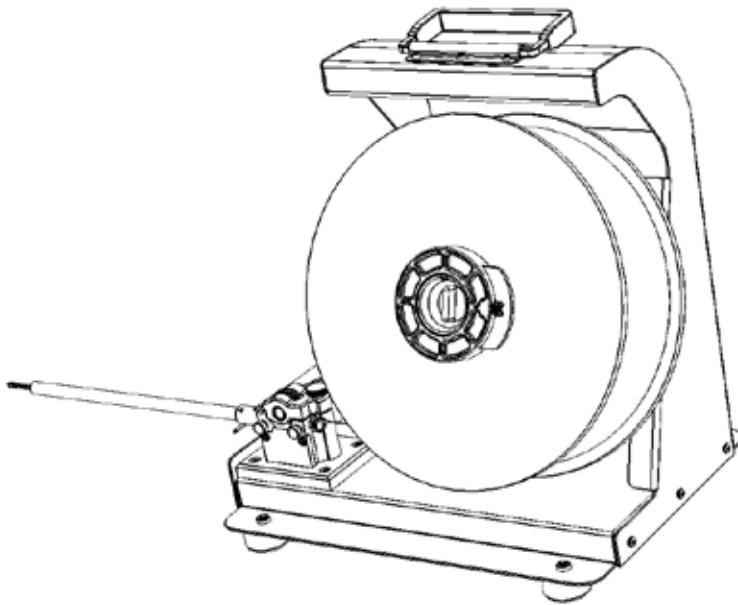


Indicates a change in this printing.

Use only the parts marked "x" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Torch Motion Assembly Oscillation Assy	S29098-404										
2	Interface Plate PCB	S29098-405										
3	Wire Fixtruing Assy	S29098-003										
4	Control Harness	S29098-018										
5	AVC Rail Assy	S29098-401										
6	AVC Rack	S29098-403										
7	AVC Motor Assy	S29098-013										
8	Osc motor Assy	S29098-002										
9	Torch Assy	S29098-014										
10	Belt Package	S29098-402										

Miscellaneous parts



HELIX® WF20B Wire Feeder

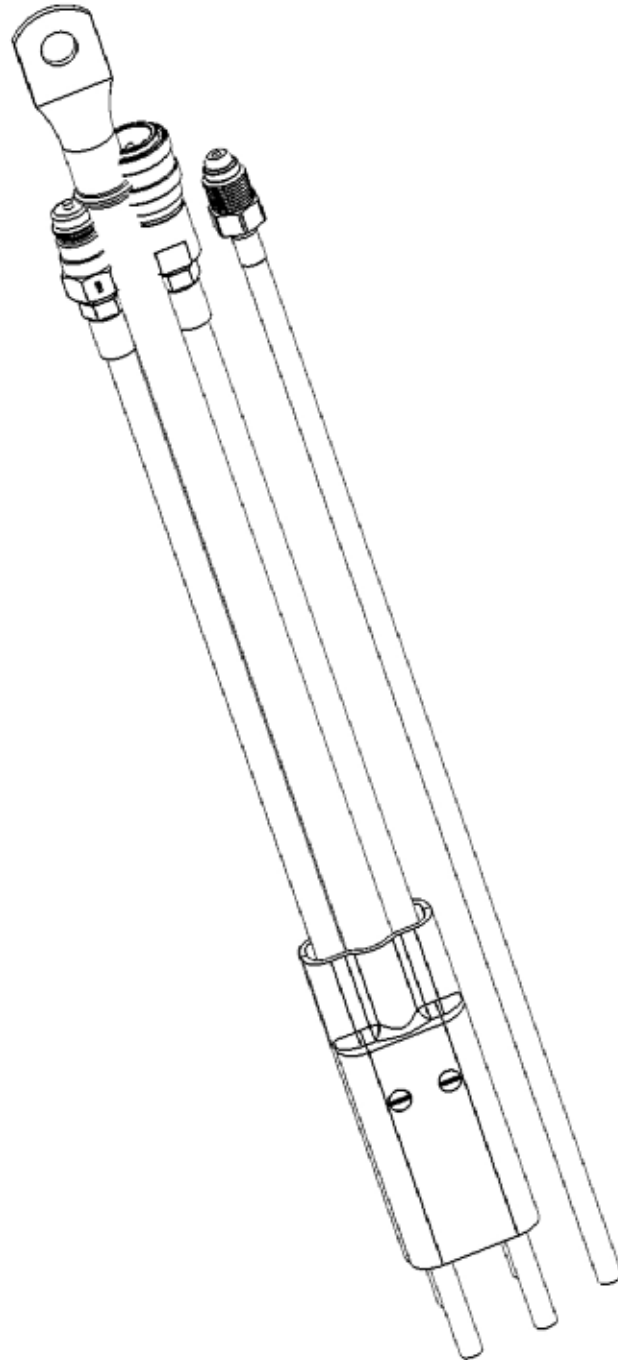


Indicates a change in this printing.

Use only the parts marked "x" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Handle Assy Handle Assy	S29098-012										
2	Rubber Handle											

Cable Assembly Switch



HELIX® WF20B Wire Feeder



Indicates a change in this printing.

Use only the parts marked "x" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Cable Assembly Cable Assembly	S29098-017										

			
WARNING	<ul style="list-style-type: none"> Do not touch electrically live parts or electrode with skin or wet clothing. Insulate yourself from work and ground. 	<ul style="list-style-type: none"> Keep flammable materials away. 	<ul style="list-style-type: none"> Wear eye, ear and body protection
Spanish AVISO DE PRECAUCION	<ul style="list-style-type: none"> No toque las partes o los electrodos bajo carga con la piel o ropa mojada. Aislese del trabajo y de la tierra 	<ul style="list-style-type: none"> Mantenga el material combustible fuera del área de trabajo. 	<ul style="list-style-type: none"> Protéjase los ojos, los oídos y el cuerpo.
French ATTENTION	<ul style="list-style-type: none"> Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension Isolez-vous du travail et de la terre 	<ul style="list-style-type: none"> Gardez à l'écart de tout matériel inflammable. 	<ul style="list-style-type: none"> Protégez vos yeux, vos oreilles et votre corps.
German WARNUNG	<ul style="list-style-type: none"> Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrer Körper oder feuchter Kleidung! Isolieren Sie sich von den Elektroden und dem Erdboden! 	<ul style="list-style-type: none"> Entfernen Sie brennbares Material! 	<ul style="list-style-type: none"> Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese ATENÇÃO	<ul style="list-style-type: none"> Não toque partes elétricas e electrodos com a pele ou roupa molhada. Isole-se da peça e terra 	<ul style="list-style-type: none"> Mantenha inflamáveis bem guardados. 	<ul style="list-style-type: none"> Use proteção para a vista, ouvido e corpo.
Japanese 注意事項	<ul style="list-style-type: none"> ● 通電中の電気部品、又は溶材にトフやぬれた布で触れないこと。 ● 施工物やアースから身体が絶縁されている様にして下さい。 	<ul style="list-style-type: none"> ● 絶対にしてはなりません。 	<ul style="list-style-type: none"> ● さい。
Chinese 警告	<ul style="list-style-type: none"> ● 皮肤或湿衣物切勿接触带电部件及焊枪 ● 使你自己的身体和工件绝缘。 	<ul style="list-style-type: none"> ● 绝对禁止。 	<ul style="list-style-type: none"> ● 必须佩戴、耳及身体防护用品。
Korean 위험	<ul style="list-style-type: none"> ● 전도체나 용접봉을 젖은 헝겊 또는 피부로 절대 접촉하지 마십시오. ● 화재와 접촉을 절충치 마십시오. 	<ul style="list-style-type: none"> ● 絶対禁止。 	<ul style="list-style-type: none"> ● 눈, 귀의 문에 보호장구를 착용하십시오.
Arabic تحذير	<ul style="list-style-type: none"> ● لا تلمس الأجزاء التي يسري فيها التيار الكهربائي أو الألكترود؛ بجهد أجسامك أو بالعلابن المبللة بتمعاء. ● ضع عملاً على جسمك خلال العمل. 	<ul style="list-style-type: none"> ● منع التواء القبلة لاحتكاك في مكان بعيد. 	<ul style="list-style-type: none"> ● ضع أدوات وعلاجك وافية على عينيك واذنك وجسمك.

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

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

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

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

			
<ul style="list-style-type: none"> Keep your head out of fumes. Use ventilation or exhaust to remove fumes from breathing zone. 	<ul style="list-style-type: none"> Turn power off before servicing. 	<ul style="list-style-type: none"> Do not operate with panel open or guards off. 	WARNING
<ul style="list-style-type: none"> Los humos fuera de la zona de respiración. Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases. 	<ul style="list-style-type: none"> Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio. 	<ul style="list-style-type: none"> No operar con panel abierto o guardas quitadas. 	Spanish AVISO DE PRECAUCION
<ul style="list-style-type: none"> Gardez la tête à l'écart des fumées Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail. 	<ul style="list-style-type: none"> Débranchez le courant avant l'entretien. 	<ul style="list-style-type: none"> N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés. 	French ATTENTION
<ul style="list-style-type: none"> Vermeiden Sie das Einatmen von Schweißrauch! Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes! 	<ul style="list-style-type: none"> Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten) 	<ul style="list-style-type: none"> Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen! 	German WARNUNG
<ul style="list-style-type: none"> Mantenha seu rosto da fumaça Use ventilação e exaustão para remover fumo da zona respiratória 	<ul style="list-style-type: none"> Não opere com as tampas removidas Desligue a corrente antes de fazer serviço. Não toque as partes elétricas nuas 	<ul style="list-style-type: none"> Mantenha-se afastado das partes moventes. Não opere com os painéis abertos ou guardas removidas 	Portuguese ATENÇÃO
<ul style="list-style-type: none"> 下さい。 ● 換気や排煙に十分留意して下さい。 ● 頭部遠ざけ煙霧 ● 呼吸吸器使用通風或排風器除煙 ● 얼굴로부터 불점/스무를 멀리하십시오. ● 호흡지역으로부터 용접가스를 제거하기 위해 기스제거나 동풍기를 사용하십시오. ● بعد رأسك بعيداً عن الدخان. ● استعمال التهوية أو جهاز ضغط الدخان للخارج لكي تبعد دخان عن المنطقة التي تنفس فيها. 	<ul style="list-style-type: none"> かかる際には、必ず電源スイッチを必ず切ってください。 ● 操作前切断電源 ● 보수전에 전원을 차단하십시오. 	<ul style="list-style-type: none"> で機械操作をしないで下さい。 ● 機械稼働時或は安全罩非不操作 ● 面部에 멀리 상태로 작업하십시오. ● 呼吸지역에서 먼지나 용접가스를 제거하십시오. ● لا تشغرو هذا الجهاز إلا كانت الاغطية الحديدية تواقية ليست عنده. 	Japanese 注意事項
			Chinese 警告
			Korean 위험
			Arabic تحذير

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

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

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

이 제품에 동봉된 작업지침서를 숙지하시고 귀사직 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المقتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.



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