

Computer Weld Technology
A Lincoln Electric Brand

10702 Old Bammel N Houston Rd.
Houston, TX 77086
Phone: (713) 462-2118
Fax: (713) 462-2503
Email: cwt@cweldtech.com

WF-200™

CAPSTAN WIRE FEEDER

Operation / Installation Manual

Manual Part Number: E8M5004
Revised: March 3, 2020



THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC.

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.

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.

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.



KEEP YOUR HEAD OUT OF THE FUMES.

DON'T get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

READ and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

USE ENOUGH VENTILATION or exhaust at the arc, or both, to keep the fumes and gases from your breathing zone and the general area.

IN A LARGE ROOM OR OUTDOORS, natural ventilation may be adequate if you keep your head out of the fumes (See below).

USE NATURAL DRAFTS or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.



WEAR CORRECT EYE, EAR & BODY PROTECTION

PROTECT your eyes and face with welding helmet properly fitted and with proper grade of filter plate (See ANSI Z49.1).

PROTECT your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.

PROTECT others from splatter, flash, and glare with protective screens or barriers.

IN SOME AREAS, protection from noise may be appropriate.

BE SURE protective equipment is in good condition.

Also, wear safety glasses in work area **AT ALL TIMES.**



SPECIAL SITUATIONS

DO NOT WELD OR CUT containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.

DO NOT WELD OR CUT painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

Additional precautionary measures

PROTECT compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.

BE SURE cylinders are never grounded or part of an electrical circuit.

REMOVE all potential fire hazards from welding area.

ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.



SECTION A: WARNINGS



CALIFORNIA PROPOSITION 65 WARNINGS



WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an exposed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to
www.P65warnings.ca.gov/diesel

WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 *et seq.*)



WARNING: Cancer and Reproductive Harm
www.P65warnings.ca.gov

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.



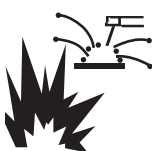
FUMES AND GASES CAN BE DANGEROUS.



- 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 hardfacing (see instructions on container or SDS) 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 unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also 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 Safety Data Sheet (SDS) and follow your employer's safety practices. SDS forms are available from your welding distributor or from the manufacturer.
- 5.f. Also see item 1.b.



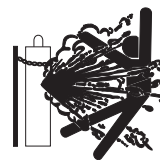
WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.



- 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 02269-9101.
- 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, 14501 George Carter Way Chantilly, VA 20151.



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.

ELECTROMAGNETIC COMPATIBILITY (EMC)

CONFORMANCE

Products displaying the CE mark are in conformity with European Community Council Directive. It was manufactured in conformity with a national standard that implements a harmonized standard: EN 60974-10 Electromagnetic Compatibility (EMC) Product Standard for Arc Welding Equipment. It is for use with other Lincoln Electric equipment. It is designed for industrial and professional use.

INTRODUCTION

All electrical equipment generates small amounts of electromagnetic emission. Electrical emission may be transmitted through power lines or radiated through space, similar to a radio transmitter. When emissions are received by other equipment, electrical interference may result. Electrical emissions may affect many kinds of electrical equipment; other nearby welding equipment, radio and TV reception, numerical controlled machines, telephone systems, computers, etc.

WARNING: This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electro-magnetic compatibility in those locations, due to conducted as well as radiated disturbances.

INSTALLATION AND USE

The user is responsible for installing and using the welding equipment according to the manufacturer's instructions.

If electromagnetic disturbances are detected then it shall be the responsibility of the user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing (grounding) the welding circuit, see Note. In other cases it could involve constructing an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases electromagnetic disturbances must be reduced to the point where they are no longer troublesome.

NOTE: The welding circuit may or may not be earthed for safety reasons. Follow your local and national standards for installation and use. Changing the earthing arrangements should only be authorized by a person who is competent to assess whether the changes will increase the risk of injury, e.g., by allowing parallel welding current return paths which may damage the earth circuits of other equipment.

ASSESSMENT OF AREA

Before installing welding equipment the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account:

- a) other supply cables, control cables, signaling and telephone cables; above, below and adjacent to the welding equipment;
- b) radio and television transmitters and receivers;
- c) computer and other control equipment;
- d) safety critical equipment, e.g., guarding of industrial equipment;
- e) the health of the people around, e.g., the use of pacemakers and hearing aids;
- f) equipment used for calibration or measurement;
- g) the immunity of other equipment in the environment. The user shall ensure that other equipment being used in the

environment is compatible. This may require additional protection measures;

- h) the time of day that welding or other activities are to be carried out.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

METHODS OF REDUCING EMISSIONS

Public Supply System

Welding equipment should be connected to the public supply system according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the system. Consideration should be given to shielding the supply cable of permanently installed welding equipment, in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

Maintenance of the Welding Equipment

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the manufacturer's instructions. In particular, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturer's recommendations.

Welding Cables

The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

Equipotential Bonding

Bonding of all metallic components in the welding installation and adjacent to it should be considered. However, metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

Earthing of the Workpiece

Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, e.g., ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by a direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

Screening and Shielding

Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire welding installation may be considered for special applications.¹

¹ Portions of the preceding text are contained in EN 60974-10 "Electromagnetic Compatibility (EMC) product standard for arc welding equipment."

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1.0 GENERAL DESCRIPTION

- 1.1 The Capstan Wire Drive, Model WF-200, is designed specifically for automation. The Capstan's small size and light weight (5 lbs. without torch - less than 8 lbs. with 300 amp water cooled torch) allows the wire feeder to be placed directly on the automated fixture or robot wrist. Thus eliminating the wire guide liners normally associated with conventional wire drive systems. The Capstan also provides an increase in wire drive contact area by wrapping the wire around the wire drive wheel. This wire drive method has three major benefits:
1. Plastic deforms the filler wire, virtually eliminating existing wire cast.
 2. Increased drive force eliminates wire slip, flattening and damage to Wire surface.
 3. Integral wire straightener on the discharge side of the feeder allows the Wire Drive to precisely locate the filler wire independent of wire cast.
- 1.2 The WF-200 Capstan wire feed drive can be used with the CWT WFD-100 wire drive controller, replacing the standard wire feed assembly.
- 1.3 The Capstan Wire Drive can be purchased in various configurations as follows:

Speed	Feed Direction	PLL Controlled	Part No
Standard	Standard Hand	Yes	E2A5216
Standard	Opposite Hand	Yes	E2A5217
Slow	Standard Hand	Yes	E2A5218
Slow	Opposite Hand	Yes	E2A5219

2.0 Wire Feed Mounting

- 2.1 The WF-200 capstan wire feeder has several mounting brackets, which can be used to adapt the WF-200 for a user specific application. Figure 1 shows the basic mounting dimensions and hole patterns for the WF-200 Standard Hand Capstan. Figure 2 shows the basic mounting dimensions and hole patterns for the WF-200 Opposite Hand Capstan. Refer to Appendix A for option mounting brackets. Due to the variety of applications the user may wish to fabricate a custom bracket for the particular installation.
- 2.2 The mounting brackets are attached to the wire feed block via 10-32 x 3/8 cap screws. The hole patterns for these mounting screws are shown in Figure 1 and 2. When fabricating a mounting bracket use these dimensions to locate the wire feeder mounting holes and torch centerline.

WARNING -The mounting holes are not through drilled. The maximum thread depth is 3/8".

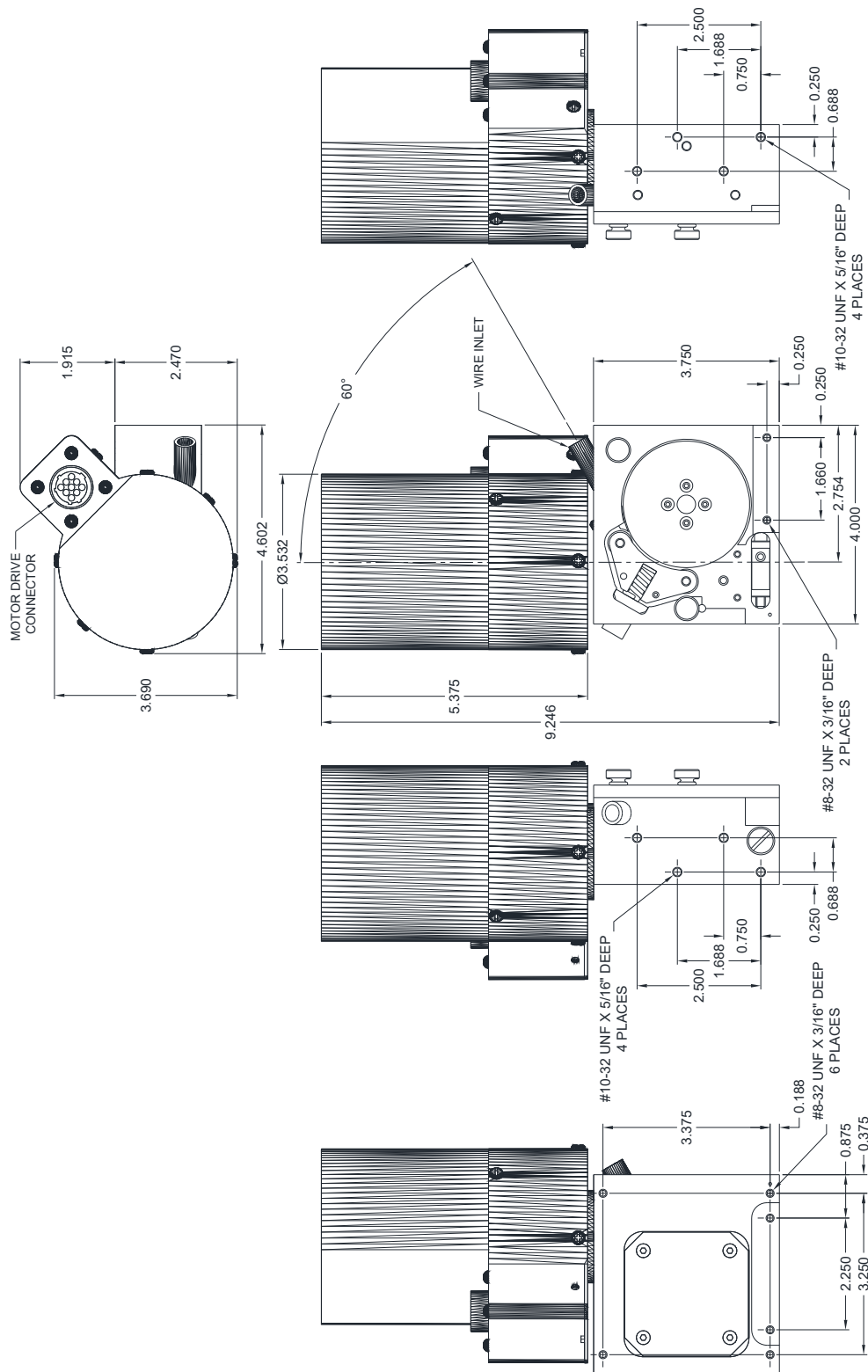


Figure 2 – Standard Speed Opposite Hand Capstan Mounting Dimensions

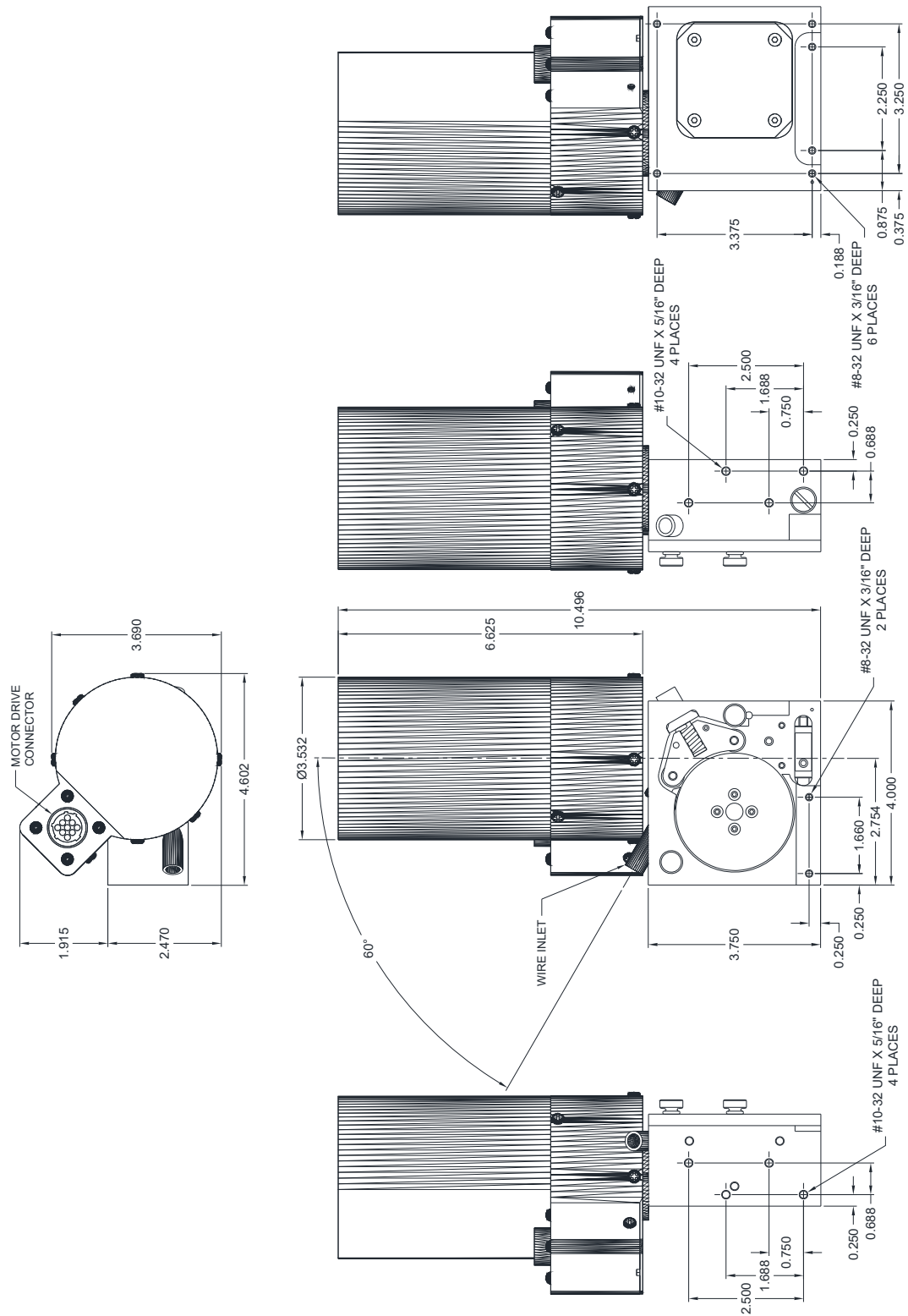


Figure 3 – Low Speed Standard Hand Capstan Mounting Dimensions

3.0 Wire Drive Wheel and Inlet Guide Installation

- 3.1 The WF-200 requires a different drive wheel and inlet wire guide for each diameter of filler wire used. To change the inlet wire guide and drive wheel, remove any existing filler wire from the capstan. Pull the existing inlet wire guide out of the capstan wire drive block. The capstan block has a spring-loaded plunger, which retains the inlet wire guide in the housing.

- 3.2 Remove the clear cover plate from the capstan by loosening the two captive fasteners.

WARNING: During the following procedure care should be taken as the tension roller spring is under compression. Do not operate the capstan with the cover plate removed.

- 3.3 To compress the pressure roller shoe assembly spring. Use a screwdriver to tighten the captive tension release screw located on the top of the capstan wire feed housing as shown in Figure 5. Tighten the captive fastener until the tension rollers clear the wire drive wheel. Remove the four-drive wheel retaining screws and remove the wire drive wheel.

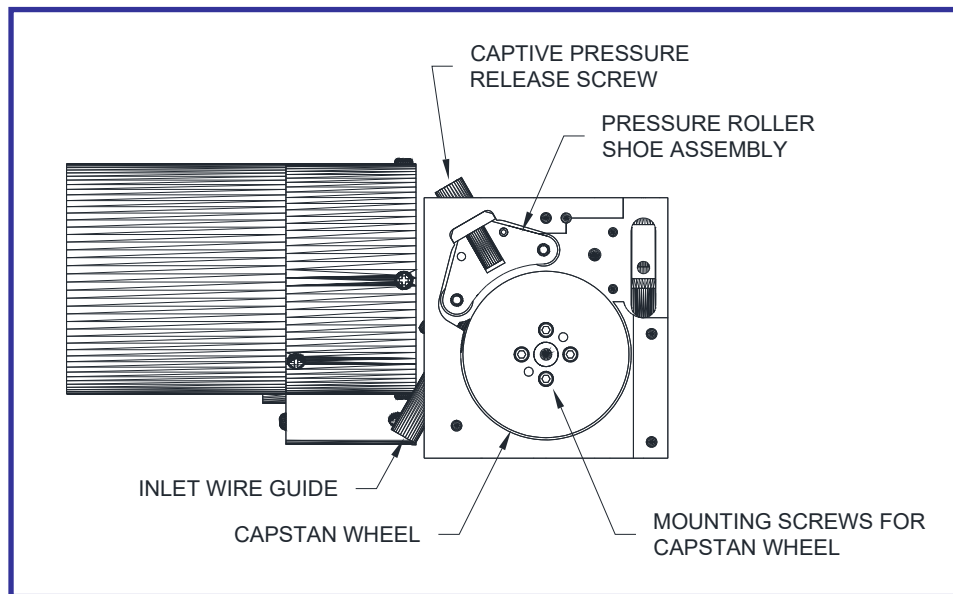


Figure 5 – Capstan Wheel Installation

- 3.4 Refer to next two chapters to select the correct drive wheel and inlet wire guide for the wire diameter and filler wire material required. Install the new drive wheel on the motor drive shaft and reinstall the four mounting screws. Release the pressure shoe spring by loosening the captive tension screw. Make sure that the pressure shoe guide pin is seated into the groove in the cavity. The pressure shoe should be seated flat against the bottom of the housing.

Reinstall the motor cover plate. Check to make sure that the cover is seated flat against the housing. Install the new wire guide inlet into the wire feed block. Make sure that the curved surface on the inlet guide is pointed towards the capstan drive wheel. Using the wire inch control feed the new filler wire into the capstan and check for proper operation.

4.0 Steel Alloy Wire Straightener Installation

- 4.1 When using a steel alloy filler wire with the capstan, a Non-aluminum Wire Kit specifically made for each size wire must be installed on the capstan. Figure 6 and 7 show all the parts that are included in these kits. The capstan drive is not part of these kits.

Steel Alloy Wire Kit

Wire Size Inc / mm	Standard Hand Part No	Opposite Hand Part No
0.030" / 0.76mm	E2A5164	E2A5169
0.035" / 0.89mm	E2A5165	E2A5170
0.040" / 1.0mm	E2A5166	E2A5171
0.045" / 1.14mm	E2A5167	E2A5172
0.047" / 1.19mm	E2A5167	E2A5172
0.052" / 1.32mm	E2A5168	E2A5173

- 4.2 All parts that are wire size specific in these kits are marked with color codes to prevent mixing incompatible parts.

Color Codes for Kits

Wire Size Inc / mm	Color Code
0.030" / 0.76mm	White
0.035" / 0.89mm	Red
0.040" / 1.0mm	Gold
0.045" / 1.14mm	Yellow
0.047" / 1.19mm	Yellow
0.052" / 1.32mm	Blue
0.062" / 1.58mm	Green

- 4.3 Refer to section 3.0 for instruction on how to remove and install any inlet guide, capstan wheel and the pressure roller shoe spring.

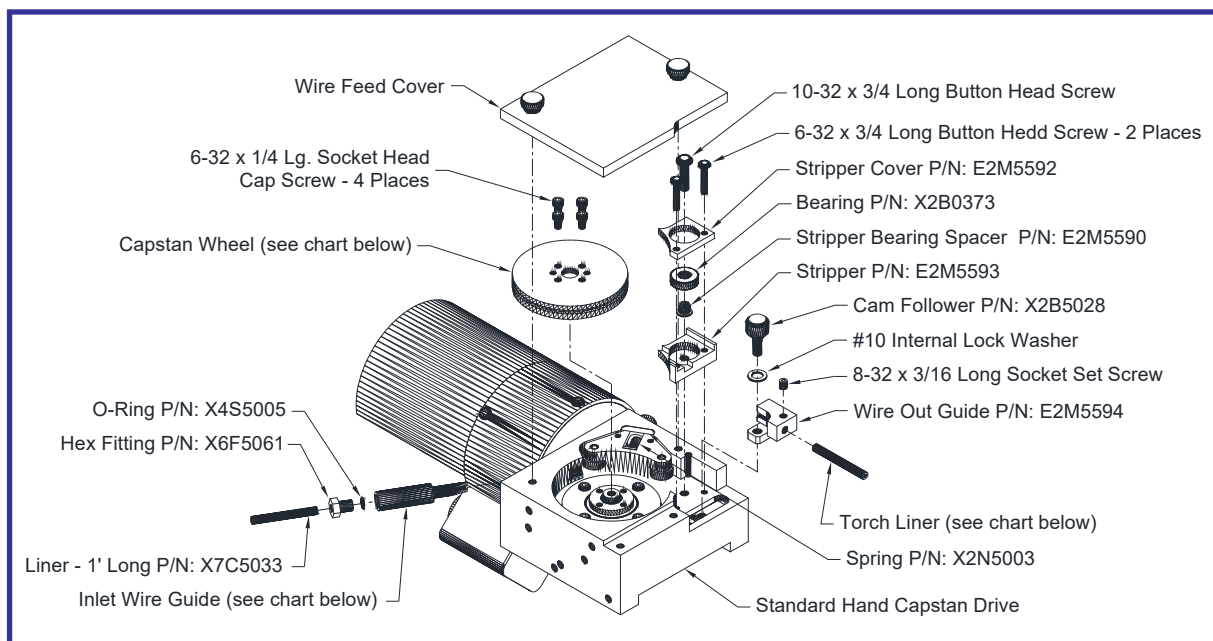


Figure 6 – Steel Alloy Standard Hand Wire Drive Configuration

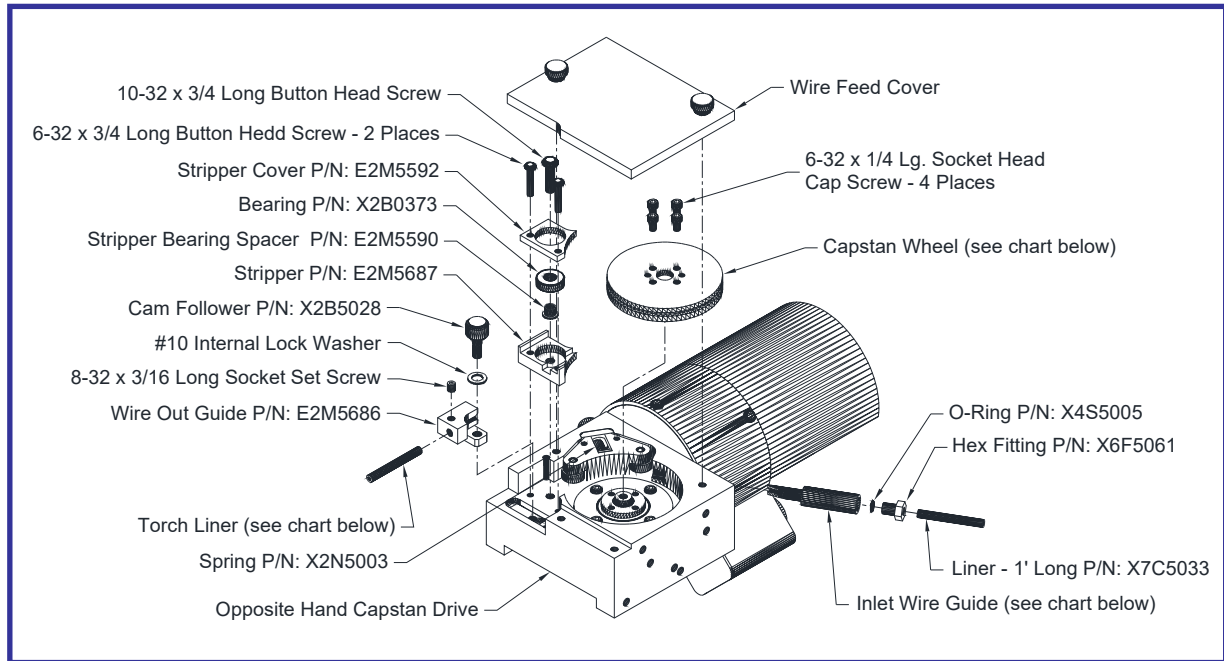


Figure 7 – Steel Alloy Opposite Hand Wire Drive Configuration

Wire Diameter Inch / MM	Capstan Wheel	Inlet Wire Guide	Torch Liner	Color Code
.030" / .76mm	E2M5583	E2M5616	E7C5001	White
.035" / .89mm	E2M5157	E2M5617	E7C5001	Red
.040" / 1mm	E2M5633	E2M5634	E7C5001	Gold
.045" / 1.14mm	E2M5156	E2M5619	E7C5001	Yellow
.047" / 1.19mm	E2M5156	E2M5619	E7C5001	Yellow
.052" / 1.32mm	E2M5584	E2M5620	E7C5002	Blue

5.0 Aluminum Wire Pick-up Block Installation

- 5.1 When using an aluminum filler wire with the capstan, an Aluminum Wire Pick-up Block Kit specifically made for each size wire must be installed on the capstan. Figure 8 and 9 show all the parts that are included in these kits. The capstan drive is not part of these kits.

Aluminum Wire Pick-up Block Kit

Wire Size Inc / mm	Standard Hand Part No	Opposite Hand Part No
0.030" / 0.76mm	E2A5154	E2A5159
0.035" / 0.89mm	E2A5155	E2A5160
0.040" / 1.0mm	E2A5156	E2A5161
0.045" / 1.14mm	E2A5157	E2A5162
0.047" / 1.19mm	E2A5157	E2A5163
0.052" / 1.32mm	E2A5183	E2A5184
0.062" / 1.58mm	E2A5158	E2A5164

- 5.2 All parts that are wire size specific in these kits are marked with color codes to prevent mixing incompatible parts.

Color Codes for Kit

Wire Size Inc / mm	Color Code
0.030" / 0.76mm	White
0.035" / 0.89mm	Red
0.040" / 1.0mm	Gold
0.045" / 1.14mm	Yellow
0.047" / 1.19mm	Yellow
0.052" / 1.32mm	Blue
0.062" / 1.58mm	Green

- 5.3 When using aluminum filler wire with the capstan the wire straightener must be removed and a nylon stripper block and inlet guide must be installed. The pressure spring must also be changed to prevent excessive deformation of the wire in the wire drive wheel groove. The nylon inlet guide is required to prevent wire injury and the wire straightener is removed to prevent bird nesting of the soft aluminum wire. The nylon stripper block provides complete support of the aluminum wire and also has a scraper blade, which picks the wire out of the capstan groove and directs it into the outlet guide.
- 5.4 Refer to section 3.0 for instruction on how to remove the inlet guide and the pressure roller shoe assembly. Unscrew the cam follower bearing on the wire outlet guide (movable portion of the wire straightener). Remove the torch liner set screw on the wire outlet guide block and remove the block. Remove the two mounting screws on the stripper plate assembly and remove the top plate. Unscrew the stripper plate bearing shoulder screw and remove the bearing and lower stripper plate.
- 5.5 Refer to Figure 8 and 9 to select the correct wire drive wheel, inlet guide, scraper plate and pressure roller shoe spring for the desired wire diameter. Install the new drive wheel on the motor drive shaft and reinstall the four mounting screws. Install the spring into the pressure roller assembly. Tilt the pressure shoe assembly with the spring setting against the pressure shoe cavity on the motor mounting block. Compress the spring until the pressure shoe assembly can be lowered into the cavity. Make sure that the pressure shoe guide pin is seated into the groove in the cavity. The pressure shoe should be seated flat against the bottom of the housing.

- 5.6 Slide the stripper block over the torch liner and slide the stripper block into the wire feed block. Align the two holes in the stripper block with the mounting holes and reinstall the two stripper plate screws. Install the torch liner set screw. Reinstall the motor cover plate. Check to make sure that the cover is seated flat against the housing. Install the new wire guide inlet into the wire feed block. Make sure that the curved surface on the inlet guide is pointed towards the capstan drive wheel. Using the wire inch control feed the new filler wire into the capstan and check for proper operation.

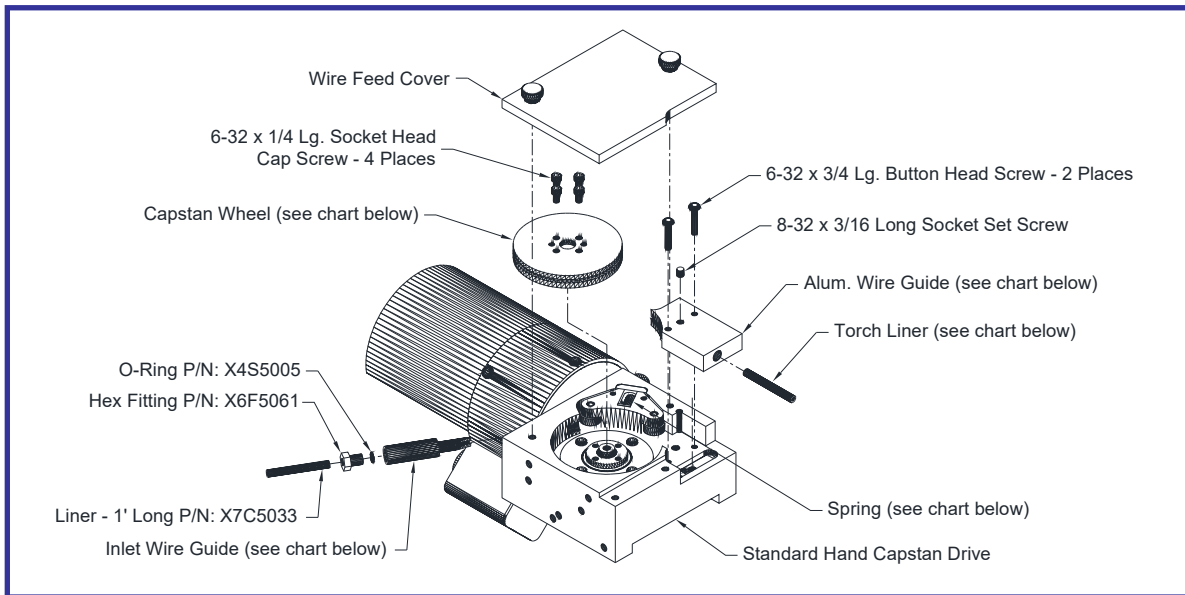


Figure 8 – Aluminum Pick-up Block Standard Hand Wire Drive Configuration

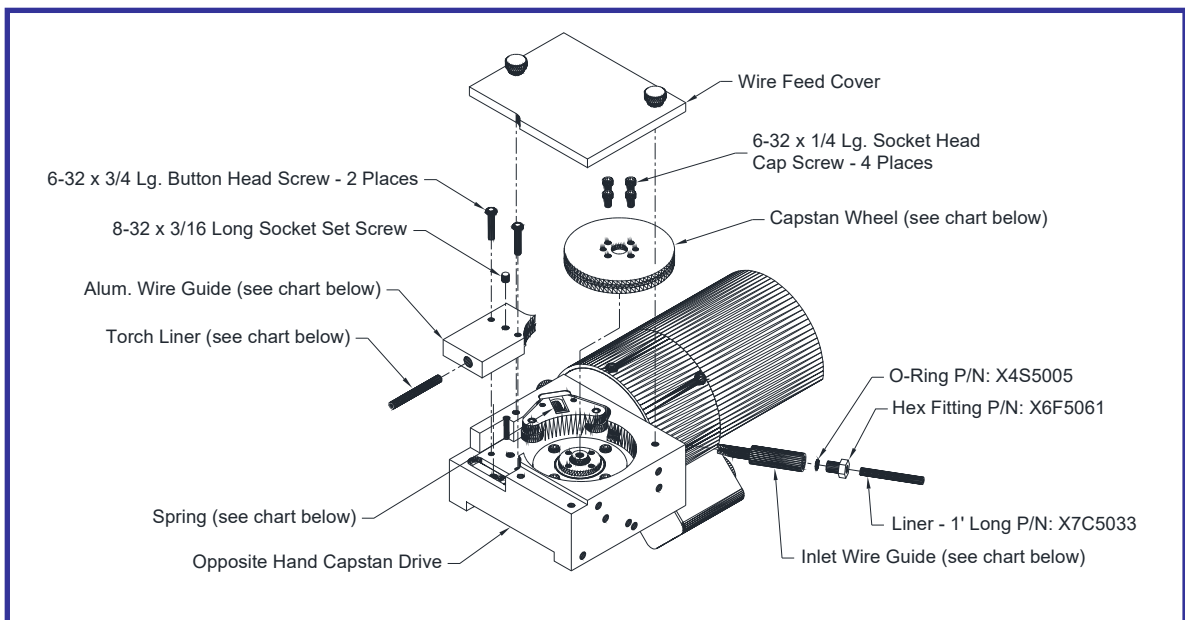


Figure 9 – Aluminum Pick-up Block Opposite Hand Wire Drive Configuration

Wire Diameter Inch / MM	Capstan Wheel	Inlet Wire Guide	Aluminum Wire Guide	Spring	Torch Liner	Color Code
.030" / .76mm	E2M5583	E2M5622	E2M5636	X2N5013	E7C5003	White
.035" / .89mm	E2M5157	E2M5623	E2M5637	X2N5014	E7C5003	Red
.040" / 1mm	E2M5633	E2M5635	E2M5638	X2N5015	E7C5005	Gold
.045" / 1.14mm	E2M5156	E2M5625	E2M5601	X2N5012	E7C5005	Yellow
.047" / 1.19mm	E2M5156	E2M5625	E2M5601	X2N5012	E7C5005	Yellow
.052" / 1.32mm	E2M5584	E2M5626	E2M5639	X2N5016	E7C5005	Blue
.062" / 1.58mm	E2M5582	E2M5627	E2M5640	X2N5003	E7C5006	Green

6.0 Aluminum Wire Straightener Installation

- 6.1 When using an aluminum filler wire with the capstan, an Aluminum Wire Straightener Kit specifically made for each size wire must be installed on the capstan. Figure 10 and 13 show all the parts that are included in these kits. The capstan drive is not part of these kits.

Aluminum Wire Straightener Kit

Wire Size Inch / mm	Standard Hand Part No	Opposite Hand Part No
0.030" / 0.76mm	E2A5146	E2A5150
0.035" / 0.89mm	E2A5147	E2A5151
0.040" / 1.0mm	E2A5148	E2A5152
0.045" / 1.14mm	E2A5149	E2A5153
0.047" / 1.19mm	E2A5149	E2A5153
0.052" / 1.32mm	E2A5188	E2A5189
0.062" (1.6mm)	E2A5158	E2A5163

- 6.2 All parts that are wire size specific in these kits are marked with color codes to prevent mixing incompatible parts.

Color Codes for Kit

Wire Size Inc / mm	Color Code
0.030" / 0.76mm	White
0.035" / 0.89mm	Red
0.040" / 1.0mm	Gold
0.045" / 1.14mm	Yellow
0.047" / 1.19mm	Yellow
0.052" / 1.32mm	Blue
0.062" / 1.58mm	Green

- 6.3 Installation of the torch liner into the aluminum wire straightener is critical as it is most important to provide support for the aluminum filler wire for the entire length of the travel, from the capstan wheel to the torch contact tip, without restricting the wire movement. Commence the installation by removing the shielding gas nozzle, contact tip and gas diffuser from the welding torch and remove the torch from the Capstan Wire Drive assembly. Proceed by removing the bearing from the stripper block and the cam follower from the wire outlet guide. Loosen the setscrew, located in the wire guide outlet, and remove the existing torch liner from the assembly. Insert the new torch liner into the openings in the stripper block and outlet guide making certain that the tab on the torch liner is seated in the groove in the capstan wheel. Replace the bearing and cam follower in the stripper block and wire outlet guide respectively. Align the notches in the torch liner, making sure that the tab on the torch liner is still seated in the capstan wheel groove, with the reinstalled bearing and cam follower and secure the new torch liner in place using the set screw in the wire guide outlet. Insert the torch liner into the welding torch and remount the torch to the wire feeder in a secure manner. Using a razor blade knife, or other similarly sharp instrument, trim the torch liner to a length that allows an extension of 1/4" beyond the end of the threaded brass member to which the gas diffuser screws on. Please note that use of a tool such as side cutters to trim the torch liner has a tendency of distorting the liner, impeding the free movement of the filler wire, and causing wire feed problems while welding. Complete the installation by reinstalling the gas diffuser, contact tip and shielding gas nozzle.

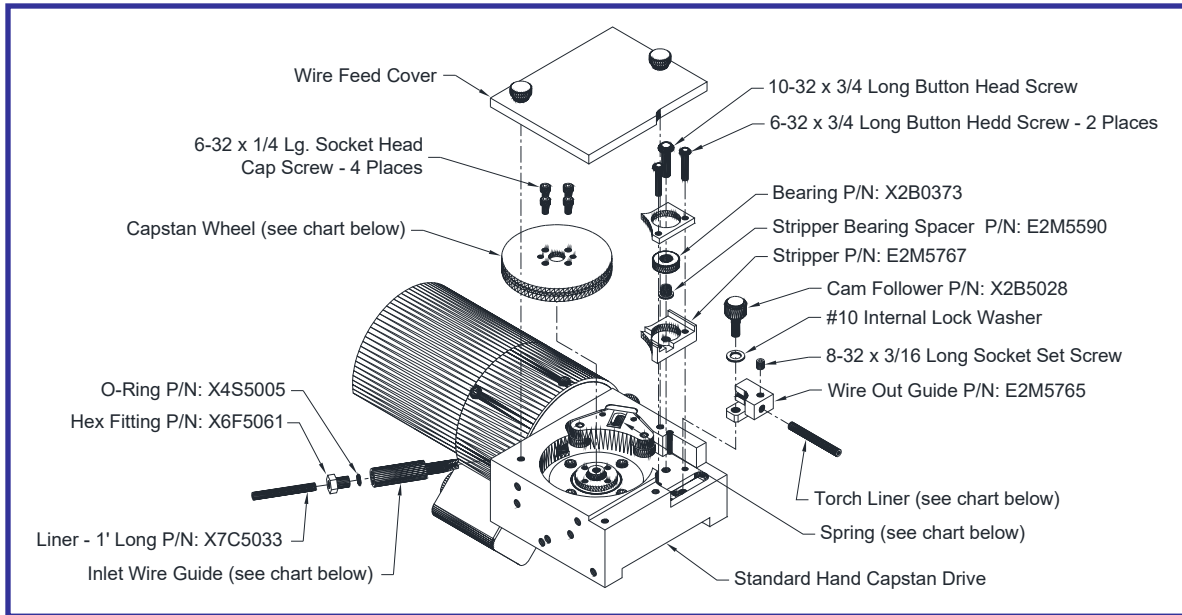


Figure 10 – 0.030" to 0.052" Aluminum Wire Straightener Standard Hand Wire Drive Configuration

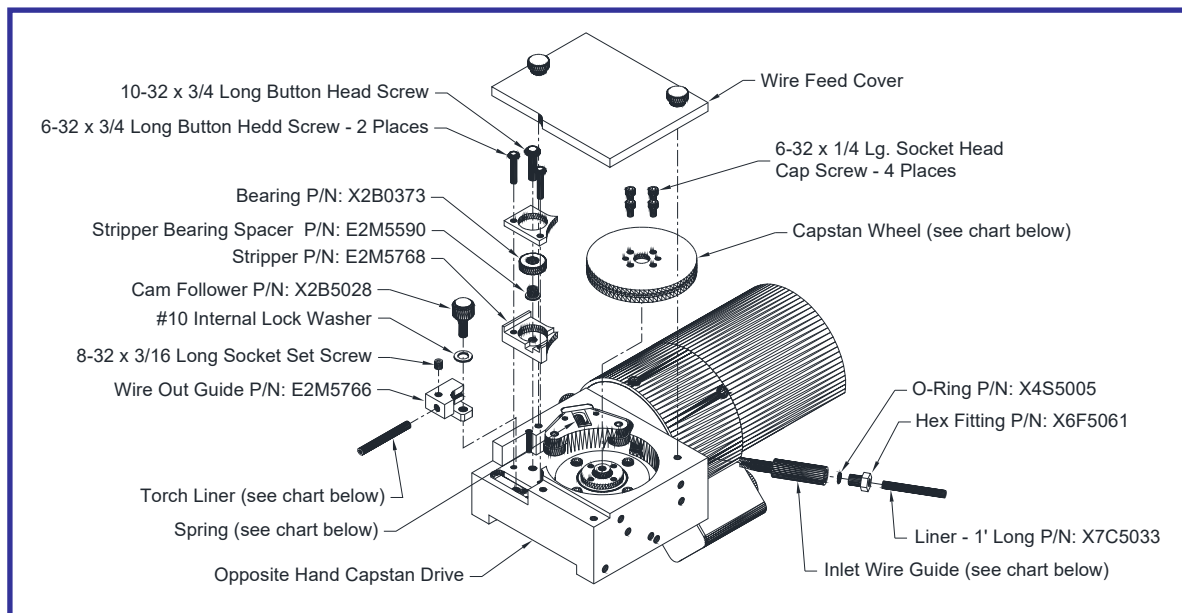


Figure 11 – 0.030" to 0.052" Aluminum Wire Straightener Opposite Hand Wire Drive Configuration

Wire Diameter Inch / MM	Capstan Wheel	Inlet Wire Guide	Spring	Torch Liner	Color Code
.030" / 0.76mm	E2M5583	E2M5622	X2N5013	E2M5778	White
.035" / 0.89mm	E2M5157	E2M5623	X2N5014	E2M5794	Red
.040" / 1.00mm	E2M5633	E2M5635	X2N5015	E2M5795	Gold
.045" / 1.14mm	E2M5156	E2M5625	X2N5012	E2M5770	Yellow
.047" / 1.19mm	E2M5156	E2M5625	X2N5012	E2M5770	Yellow
.052" / 1.32mm	E2M5584	E2M5626	X2N5003	E2M5796	Blue

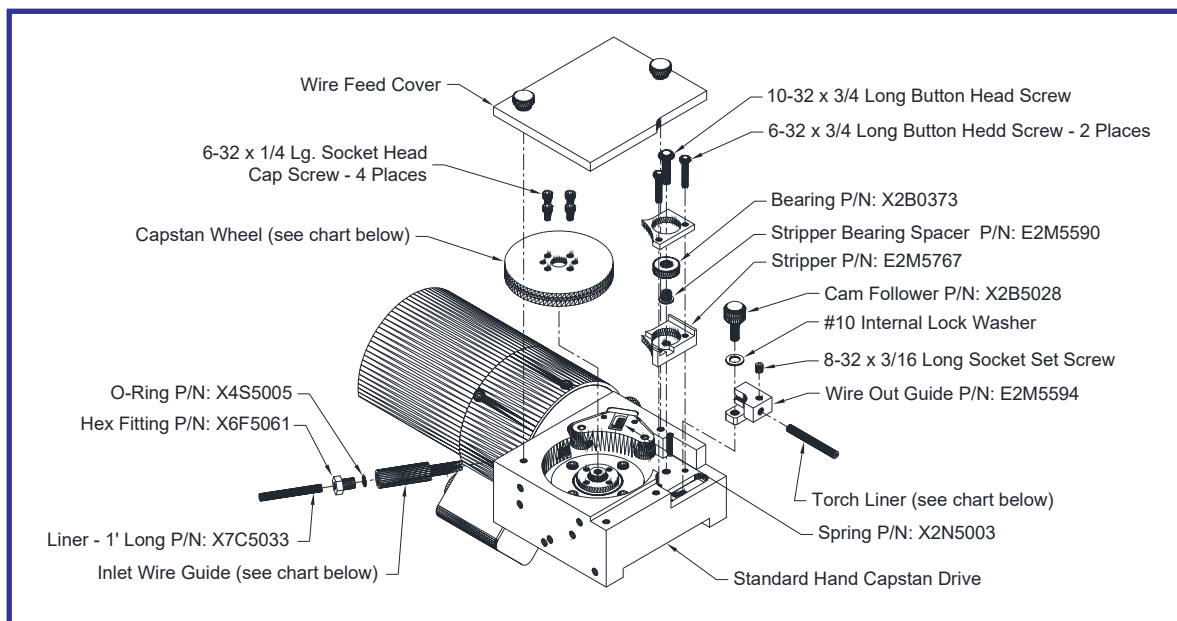


Figure 12: 0.062" Aluminum Wire Component Parts for Standard Hand Capstan Drive

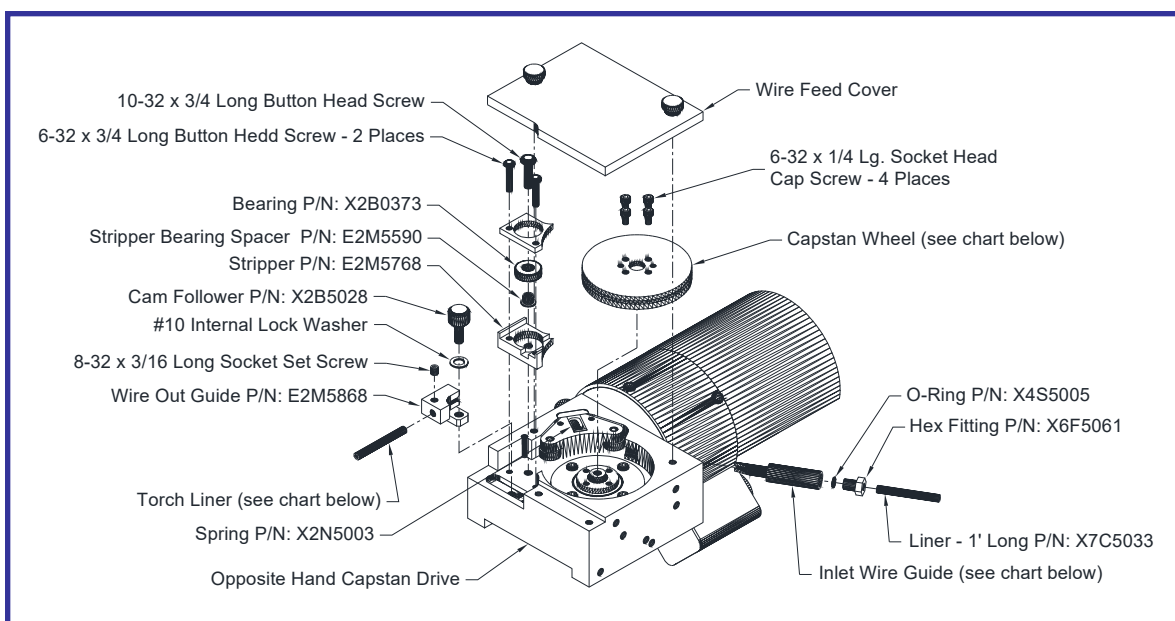
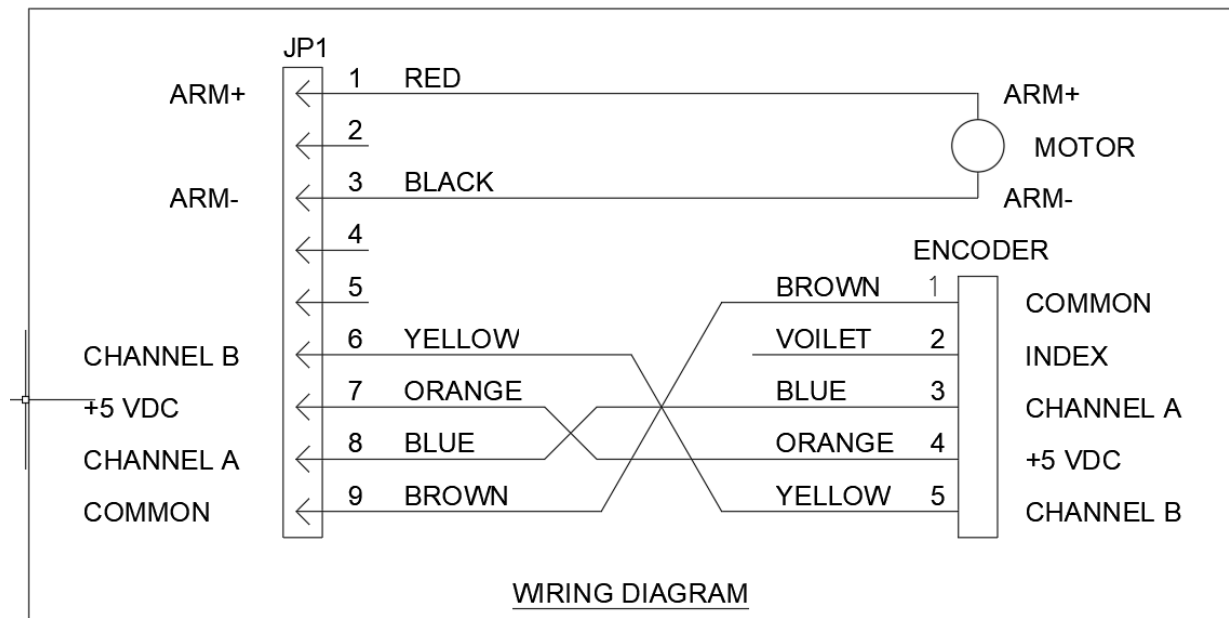


Figure 13: 0.062" Aluminum Wire Component Parts for Opposite Hand Capstan Drive

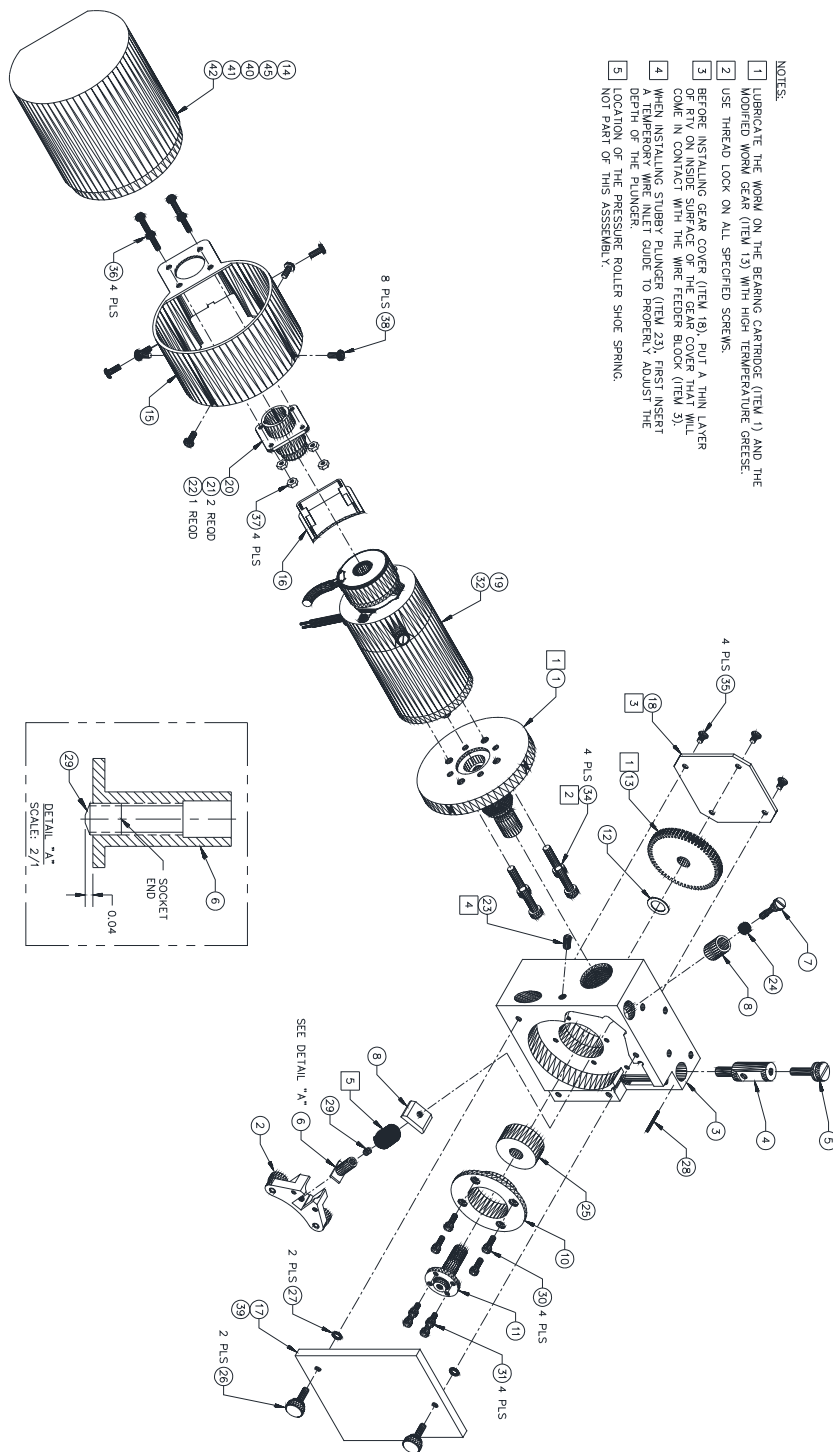
Wire Diameter Inch / MM	Capstan Wheel	Inlet Wire Guide	Spring	Torch Liner	Color Code
.062" / 1.58mm	E2M5582	E2M5627	X2N5003	E7C5006	Green

7.0 Electrical Diagram



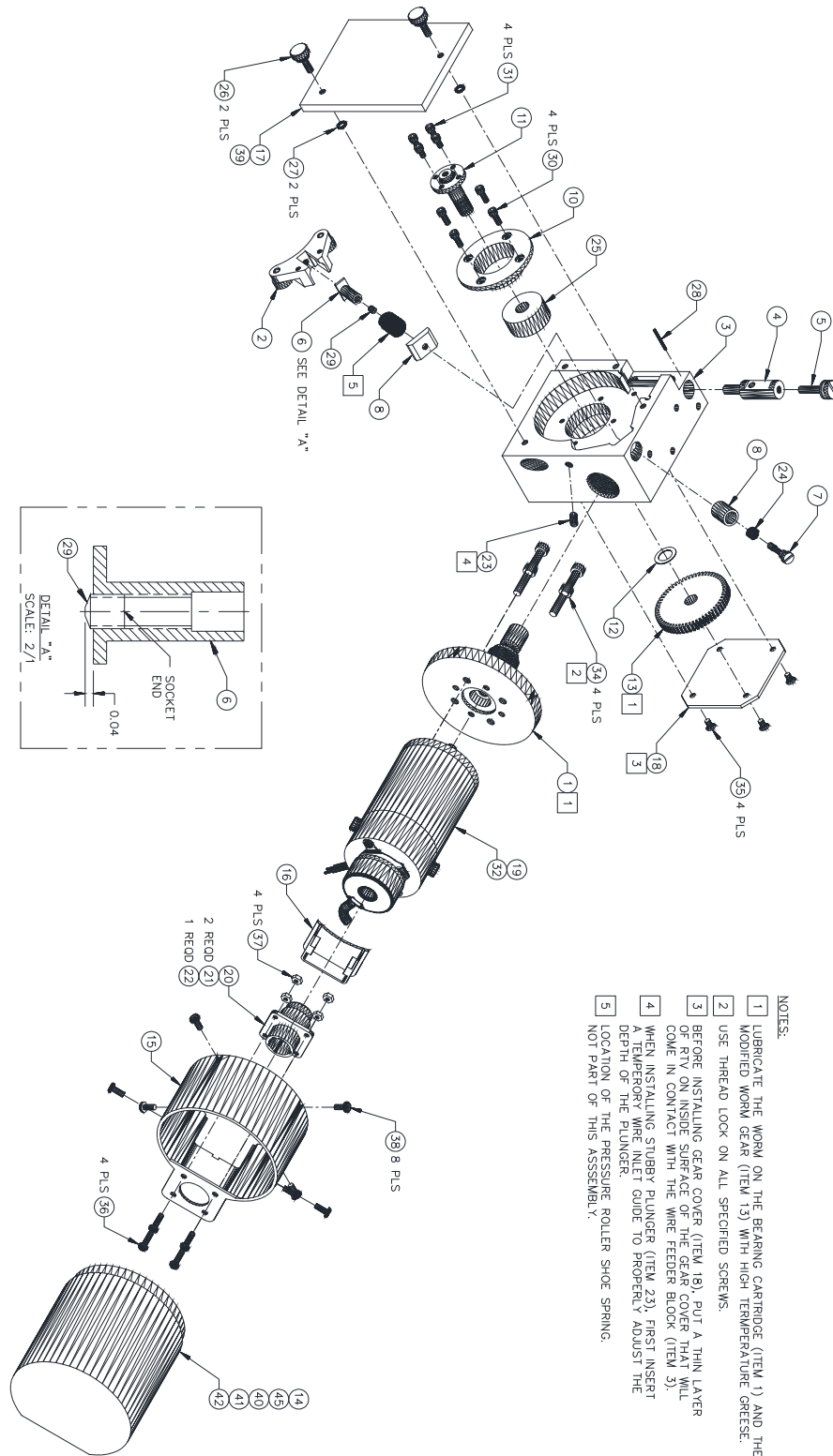
APPENDIX A WF-200 REPLACEMENT PARTS

A1 Standard Hand Standard Speed Capstan P/N: E2A5216



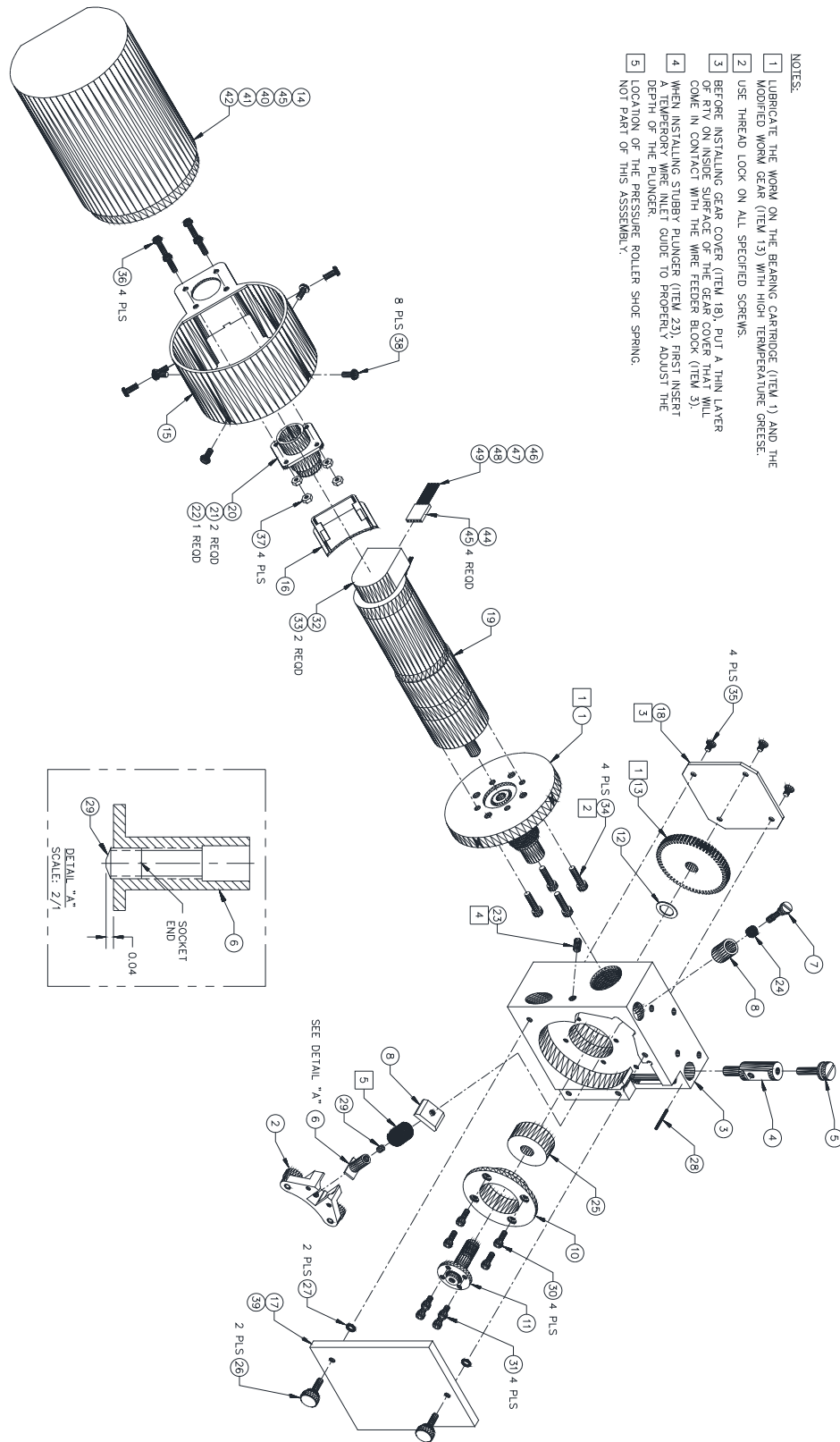
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	E2A5213	CAPSTAN BEARING CARTRIDGE ASSEMBLY
2	1	E2A5129	PRESSURE ROLLER SHOE ASSEMBLY
3	1	E2M5867	WIRE FEEDER BLOCK
4	1	E2M5151	SLIDE BLOCK
5	1	E2M5611	KNOB SHAFT
6	1	E2M5751	CAPSTAN SPRING HOLDER
7	1	E2M5750	CAPSTAN SCREW
8	1	E2M5752	CAPSTAN SPRING GUIDE
9	1	E2M5753	CAPSTAN SPRING INSERT
10	1	E2M5162	BEARING SLEEVE
11	1	E2M5608	DRIVEN SHAFT
12	1	E2M5520	BEARING SPACER
13	1	E2M5596	MODIFIED WORM GEAR
14	1	E2M5866	STANDARD SPEED MOTOR COVER
15	1	E2M5873	CONNECTOR HOUSING COVER
16	1	E2M5874	CONNECTOR BOTTOM COVER
17	1	E2M5591	WIRE FEEDER COVER
18	1	E2M5610	GEAR COVER
19	1	X3M5054	12 VDC MOTOR
20	1	X3P5144	9 CIRCUIT CPC CONNECTOR
21	2	X3P0300	14-18 AWG CPC CRIMP PIN
22	3	X3P0301	20-22 AWG CPC CRIMP PIN
23	1	X6B5083	PLUNGER
24	1	X2N5019	SPRING
25	1	E2B5001	BEARING
26	2	X6B5086	FINGER SCREW
27	2	X4S5005	O-RING
28	1		1/16" DIA x 3/4" LG BLK ALY ROLL PIN
29	1		#8-32 x 3/16" LG SOCKET SET SCREW
30	4		#6-32 x 3/8" LG BLK ALY SKT CAP HD SCREW
31	4		#6-32 x 1/4" LG BLK ALY BUTTON HD SCREW
32	1	X3M5048	3/8" SHAFT OPTICAL ENCODER
33	2		#4-40 x 3/8" LG BLK ALY PAN HD SCREW W/ INTERNAL LOCK WASHER
34	4		M5-0.8 X 12MM SOCKET CAP HEAD SCREW
35	4		#6-32 x 1/4" LG BLK ALY FLAT HD SCREW
36	4		#4-40 x 3/8" LG BLK ALY PAN HD SCREW
37	4		#4-40 BLK ALY JAM NUT
38	8		#6-32 x 3/8" LG BLK ALY BUTTON HD SCREW
39	1	S3E5049	WF-200 LABEL
40	1		SERIAL NUMBER LABEL
41	1		WARNING #1 LABEL
42	1		WARNING #2 LABEL
43	1		SMALL BLACK CABLE TIE

A2 Opposite Hand Standard Speed Capstan P/N: E2A5217



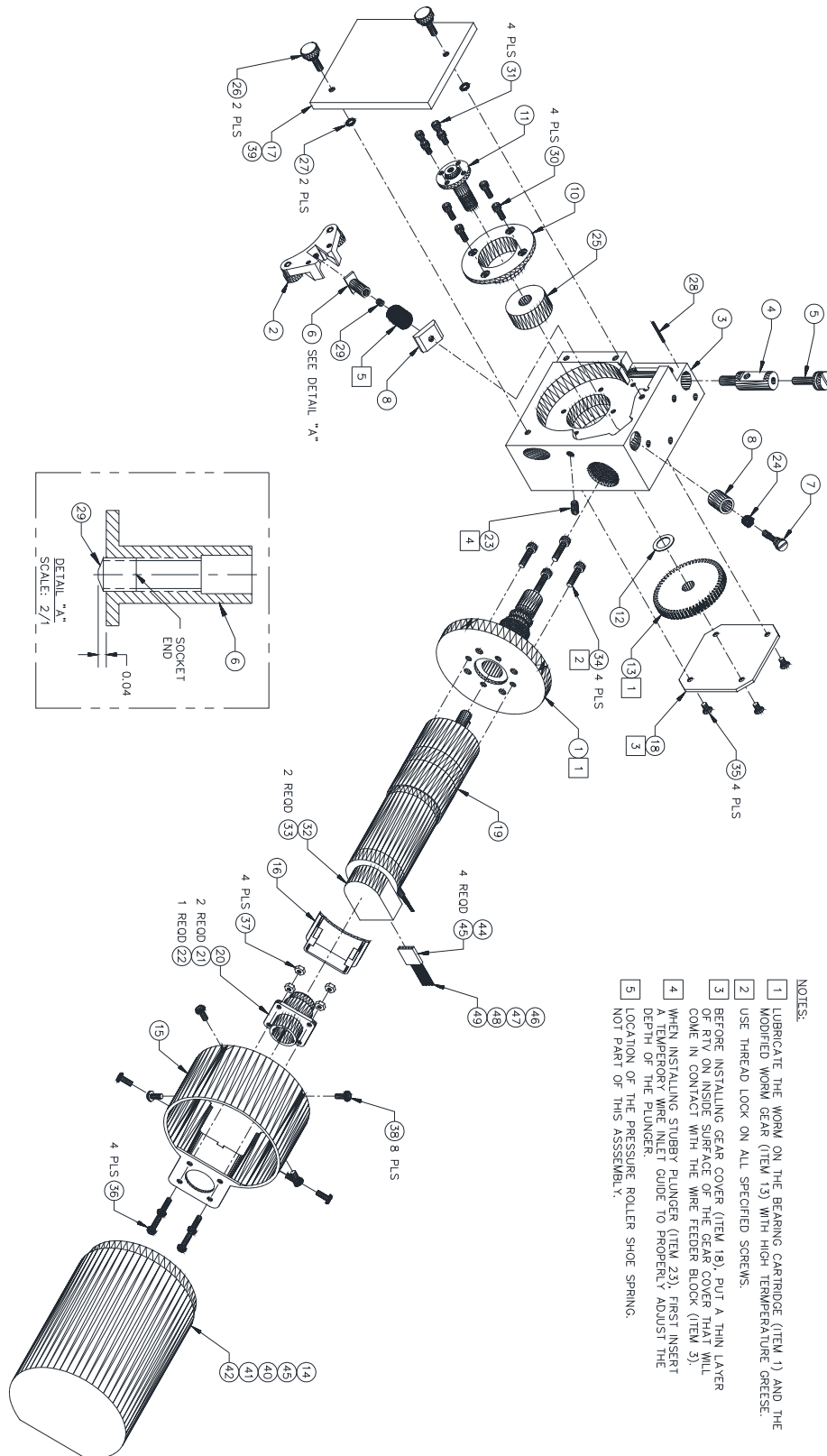
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	E2A5213	CAPSTAN BEARING CARTRIDGE ASSEMBLY
2	1	E2A5129	PRESSURE ROLLER SHOE ASSEMBLY
3	1	E2M5868	WIRE FEEDER BLOCK
4	1	E2M5151	SLIDE BLOCK
5	1	E2M5611	KNOB SHAFT
6	1	E2M5751	CAPSTAN SPRING HOLDER
7	1	E2M5750	CAPSTAN SCREW
8	1	E2M5752	CAPSTAN SPRING GUIDE
9	1	E2M5753	CAPSTAN SPRING INSERT
10	1	E2M5162	BEARING SLEEVE
11	1	E2M5608	DRIVEN SHAFT
12	1	E2M5520	BEARING SPACER
13	1	E2M5596	MODIFIED WORM GEAR
14	1	E2M5866	STANDARD SPEED MOTOR COVER
15	1	E2M5873	CONNECTOR HOUSING COVER
16	1	E2M5874	CONNECTOR BOTTOM COVER
17	1	E2M5683	WIRE FEEDER COVER
18	1	E2M5610	GEAR COVER
19	1	X3M5054	12 VDC MOTOR
20	1	X3P5144	9 CIRCUIT CPC CONNECTOR
21	2	X3P0300	14-18 AWG CPC CRIMP PIN
22	3	X3P0301	20-22 AWG CPC CRIMP PIN
23	1	X6B5083	PLUNGER
24	1	X2N5019	SPRING
25	1	E2B5001	BEARING
26	2	X6B5086	FINGER SCREW
27	2	X4S5005	O-RING
28	1		1/16" DIA x 3/4" LG BLK ALY ROLL PIN
29	1		#8-32 x 3/16" LG SOCKET SET SCREW
30	4		#6-32 x 3/8" LG BLK ALY SKT CAP HD SCREW
31	4		#6-32 x 1/4" LG BLK ALY BUTTON HD SCREW
32	1	X3M5048	3/8" SHAFT OPTICAL ENCODER
33	2		#4-40 x 3/8" LG BLK ALY PAN HD SCREW W/ INTERNAL LOCK WASHER
34	4		M5-0.8 X 12MM SOCKET CAP HEAD SCREW
35	4		#6-32 x 1/4" LG BLK ALY FLAT HD SCREW
36	4		#4-40 x 3/8" LG BLK ALY PAN HD SCREW
37	4		#4-40 BLK ALY JAM NUT
38	8		#6-32 x 3/8" LG BLK ALY BUTTON HD SCREW
39	1	S3E5049	WF-200 LABEL
40	1		SERIAL NUMBER LABEL
41	1		WARNING #1 LABEL
42	1		WARNING #2 LABEL
43	1		SMALL BLACK CABLE TIE

A3 Standard Hand Low Speed Capstan P/N: E2A5218



ITEM	QTY.	PART NO.	DESCRIPTION
1	1	E2A5214	CAPSTAN BEARING CARTRIDGE ASSEMBLY
2	1	E2A5129	PRESSURE ROLLER SHOE ASSEMBLY
3	1	E2M5867	WIRE FEEDER BLOCK
4	1	E2M5151	SLIDE BLOCK
5	1	E2M5611	KNOB SHAFT
6	1	E2M5751	CAPSTAN SPRING HOLDER
7	1	E2M5750	CAPSTAN SCREW
8	1	E2M5752	CAPSTAN SPRING GUIDE
9	1	E2M5753	CAPSTAN SPRING INSERT
10	1	E2M5162	BEARING SLEEVE
11	1	E2M5608	DRIVEN SHAFT
12	1	E2M5520	BEARING SPACER
13	1	E2M5596	MODIFIED WORM GEAR
14	1	E2M5869	LOW SPEED MOTOR COVER
15	1	E2M5873	CONNECTOR HOUSING COVER
16	1	E2M5874	CONNECTOR BOTTOM COVER
17	1	E2M5591	WIRE FEEDER COVER
18	1	E2M5610	GEAR COVER
19	1	X3M5055	12 VDC MOTOR
20	1	X3P5144	9 CIRCUIT CPC CONNECTOR
21	2	X3P0300	14-18 AWG CPC CRIMP PIN
22	3	X3P0301	20-22 AWG CPC CRIMP PIN
23	1	X6B5083	PLUNGER
24	1	X2N5019	SPRING
25	1	E2B5001	BEARING
26	2	X6B5086	FINGER SCREW
27	2	X4S5005	O-RING
28	1		1/16" DIA x 3/4" LG BLK ALY ROLL PIN
29	1		#8-32 x 3/16" LG SOCKET SET SCREW
30	4		#6-32 x 3/8" LG BLK ALY SKT CAP HD SCREW
31	4		#6-32 x 1/4" LG BLK ALY BUTTON HD SCREW
32	1	X3M5048	3/8" SHAFT OPTICAL ENCODER
33	2		#4-40 x 3/8" LG BLK ALY PAN HD SCREW W/ INTERNAL LOCK WASHER
34	4		M5-0.8 X 12MM SOCKET CAP HEAD SCREW
35	4		#6-32 x 1/4" LG BLK ALY FLAT HD SCREW
36	4		#4-40 x 3/8" LG BLK ALY PAN HD SCREW
37	4		#4-40 BLK ALY JAM NUT
38	8		#6-32 x 3/8" LG BLK ALY BUTTON HD SCREW
39	1	S3E5049	WF-200 LABEL
40	1		SERIAL NUMBER LABEL
41	1		WARNING #1 LABEL
42	1		WARNING #2 LABEL
43	1		SMALL BLACK CABLE TIE
44	1	X3P5443	5 CIRCUIT HOUSING CONNECTOR
45	4	X3P5138	CRIMP TERMINAL
46	8"		22 AWG BLACK WIRE
47	8"		22 AWG WHITE WIRE
48	8"		22 AWG RED WIRE
49	8"		22 AWG BROWN WIRE

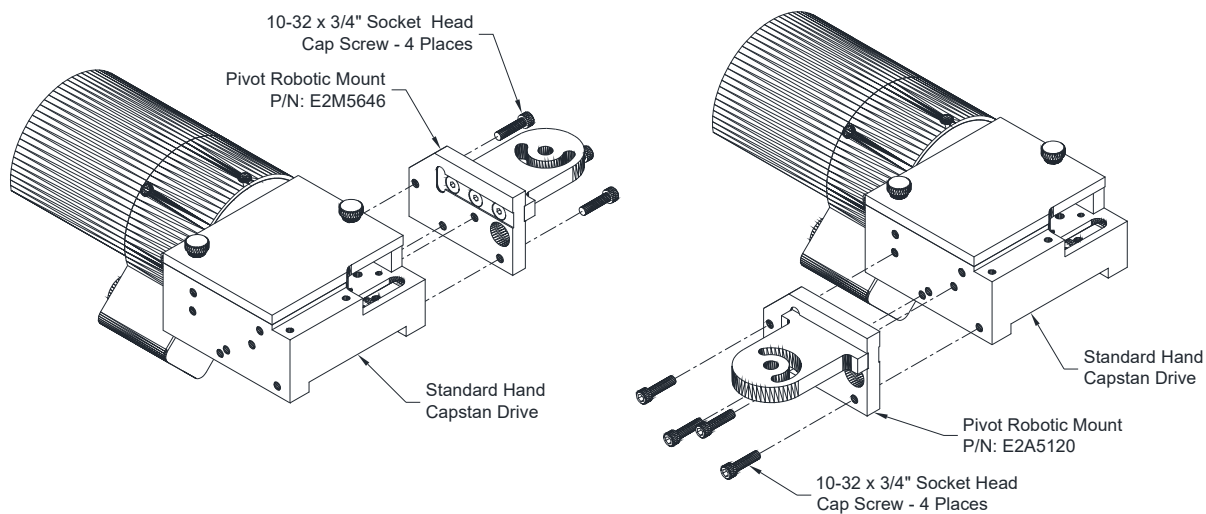
A4 Opposite Hand Low Speed Capstan P/N: E2A5219



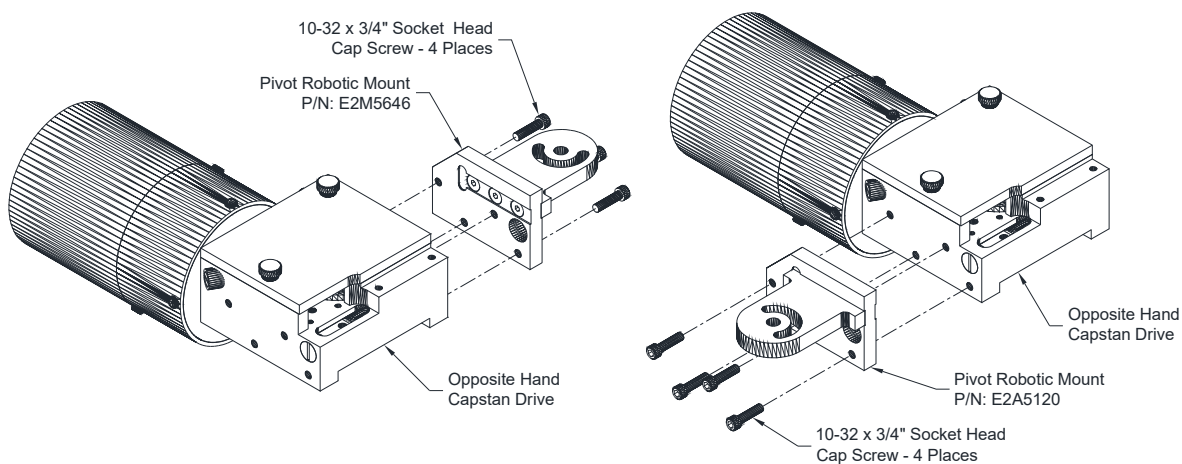
ITEM	QTY.	PART NO.	DESCRIPTION
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2	1	E2A5129	PRESSURE ROLLER SHOE ASSEMBLY
3	1	E2M5868	WIRE FEEDER BLOCK
4	1	E2M5151	SLIDE BLOCK
5	1	E2M5611	KNOB SHAFT
6	1	E2M5751	CAPSTAN SPRING HOLDER
7	1	E2M5750	CAPSTAN SCREW
8	1	E2M5752	CAPSTAN SPRING GUIDE
9	1	E2M5753	CAPSTAN SPRING INSERT
10	1	E2M5162	BEARING SLEEVE
11	1	E2M5608	DRIVEN SHAFT
12	1	E2M5520	BEARING SPACER
13	1	E2M5596	MODIFIED WORM GEAR
14	1	E2M5869	LOW SPEED MOTOR COVER
15	1	E2M5873	CONNECTOR HOUSING COVER
16	1	E2M5874	CONNECTOR BOTTOM COVER
17	1	E2M5683	WIRE FEEDER COVER
18	1	E2M5610	GEAR COVER
19	1	X3M5055	12 VDC MOTOR
20	1	X3P5144	9 CIRCUIT CPC CONNECTOR
21	2	X3P0300	14-18 AWG CPC CRIMP PIN
22	3	X3P0301	20-22 AWG CPC CRIMP PIN
23	1	X6B5083	PLUNGER
24	1	X2N5019	SPRING
25	1	E2B5001	BEARING
26	2	X6B5086	FINGER SCREW
27	2	X4S5005	O-RING
28	1		1/16" DIA x 3/4" LG BLK ALY ROLL PIN
29	1		#8-32 x 3/16" LG SOCKET SET SCREW
30	4		#6-32 x 3/8" LG BLK ALY SKT CAP HD SCREW
31	4		#6-32 x 1/4" LG BLK ALY BUTTON HD SCREW
32	1	X3M5048	3/8" SHAFT OPTICAL ENCODER
33	2		#4-40 x 3/8" LG BLK ALY PAN HD SCREW W/ INTERNAL LOCK WASHER
34	4		M5-0.8 X 12MM SOCKET CAP HEAD SCREW
35	4		#6-32 x 1/4" LG BLK ALY FLAT HD SCREW
36	4		#4-40 x 3/8" LG BLK ALY PAN HD SCREW
37	4		#4-40 BLK ALY JAM NUT
38	8		#6-32 x 3/8" LG BLK ALY BUTTON HD SCREW
39	1	S3E5049	WF-200 LABEL
40	1		SERIAL NUMBER LABEL
41	1		WARNING #1 LABEL
42	1		WARNING #2 LABEL
43	1		SMALL BLACK CABLE TIE
44	1	X3P5443	5 CIRCUIT HOUSING CONNECTOR
45	4	X3P5138	CRIMP TERMINAL
46	8"		22 AWG BLACK WIRE
47	8"		22 AWG WHITE WIRE
48	8"		22 AWG RED WIRE
49	8"		22 AWG BROWN WIRE

APPENDIX B FIXTURE MOUNTING BRACKETS

B1 Pivot Robotic Mount Installation

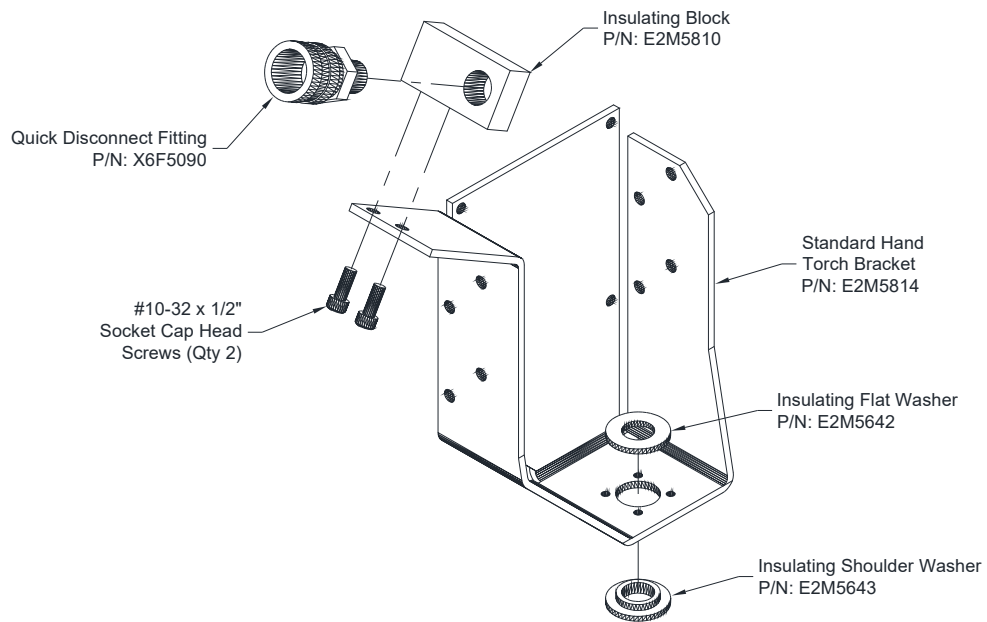


Standard Hand Wire Drive Configuration with Pivot Robotic Mount

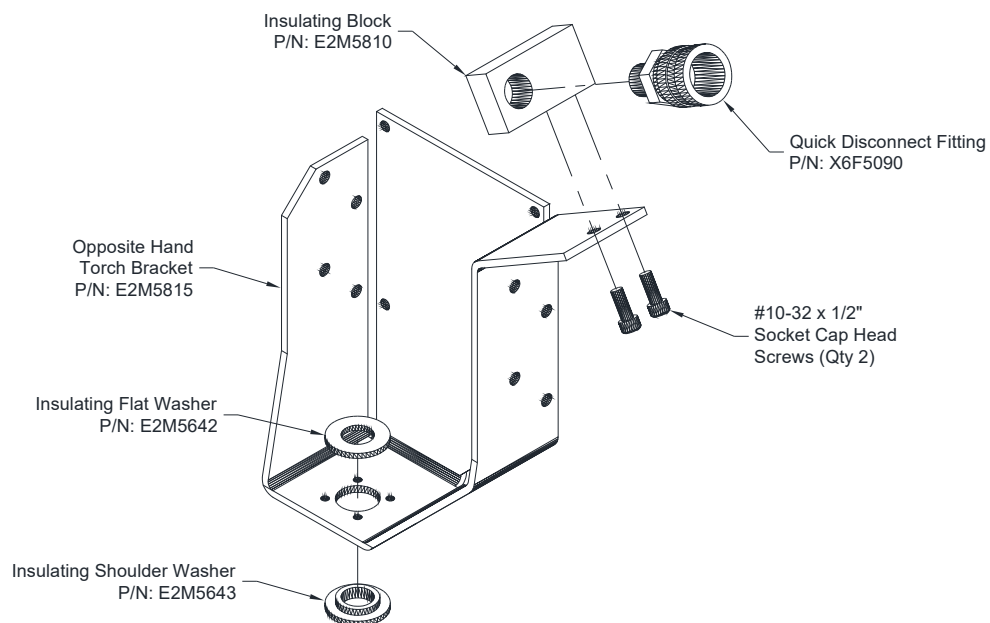


Opposite Hand Wire Drive Configuration with Pivot Robotic Mount

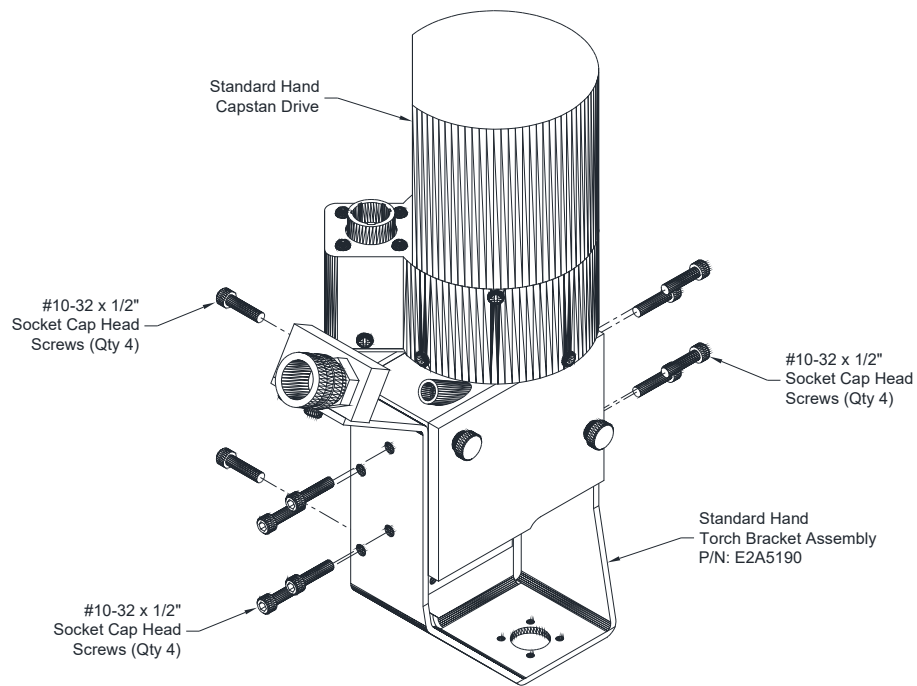
B2 Torch Bracket Installation



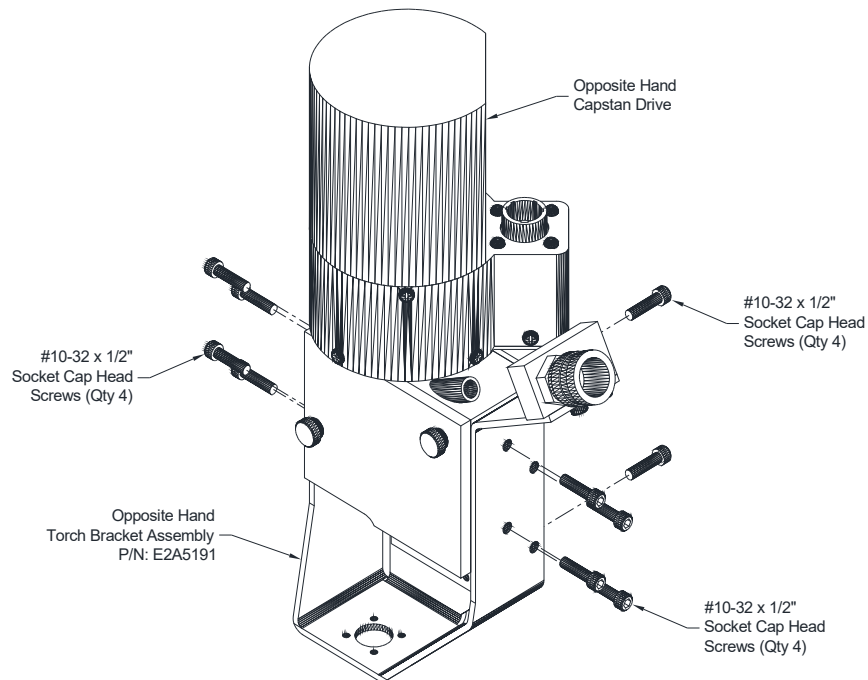
Standard Hand Torch Bracket Assembly P/N: E2A5190



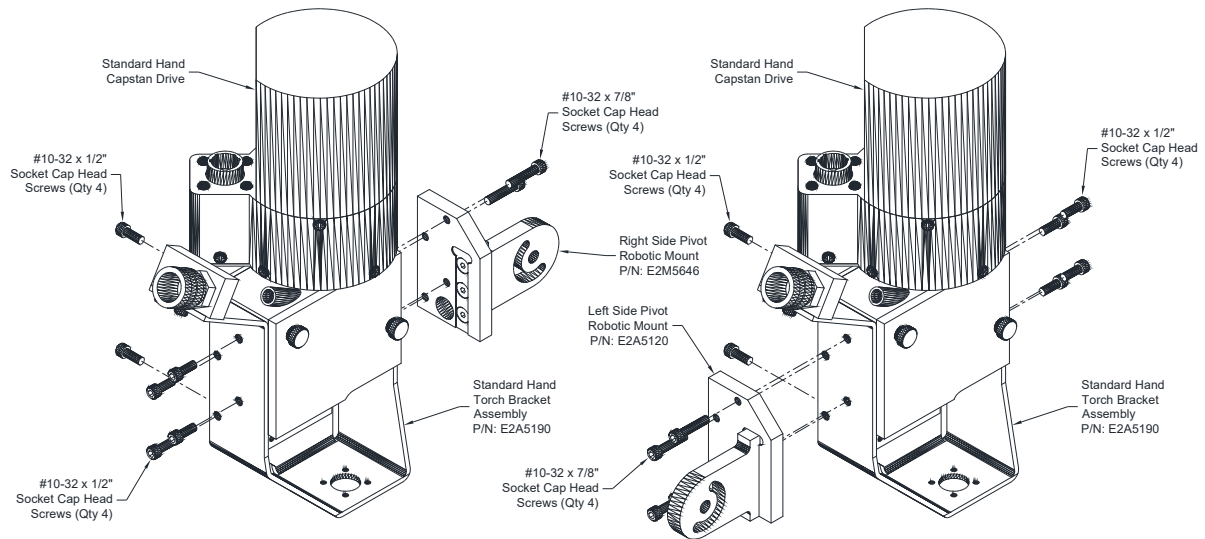
Opposite Hand Torch Bracket Assembly P/N: E2A5191



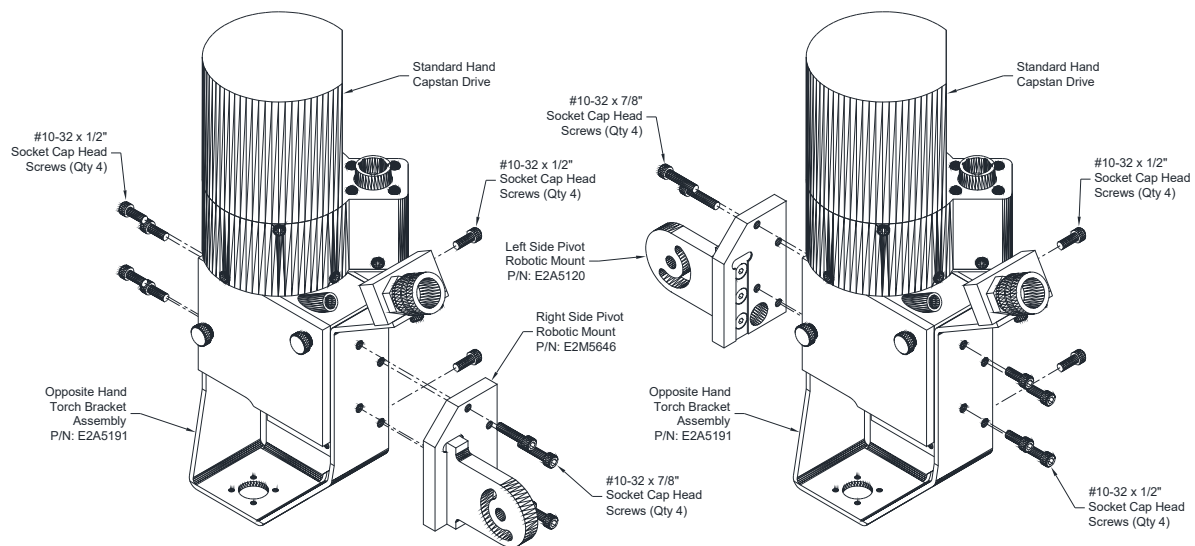
Standard Hand Torch Bracket Assembly with WF-200



Opposite Hand Torch Bracket Assembly with WF-200



Standard Hand Torch Bracket Assembly and Pivot Robotic Mount with WF-200



Opposite Hand Torch Bracket Assembly and Pivot Robotic Mount with WF-200

APPENDIX C MIG WELDING COMPONENTS

These illustrations indicate the standard equipment required for an air-cooled or water-cooled MIG welding configuration.

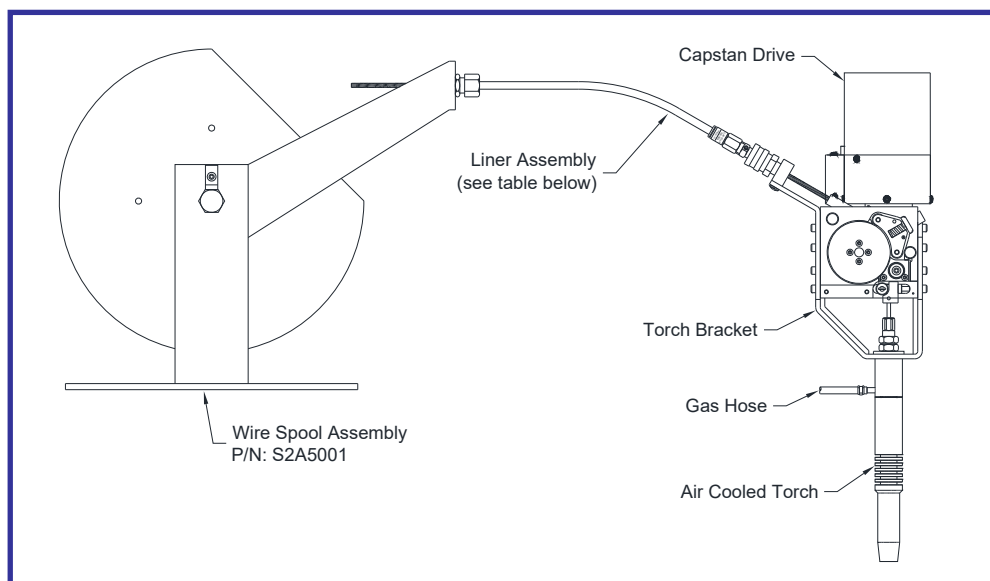


Figure 9: Air-cooled Welding Torch Configuration

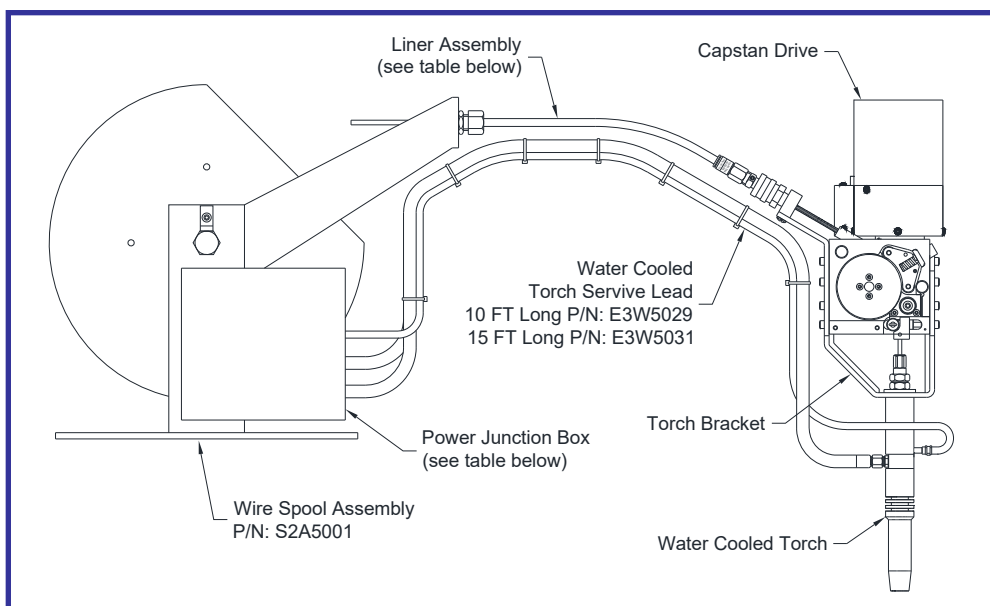


Figure 10: Water-cooled Welding Torch Configuration

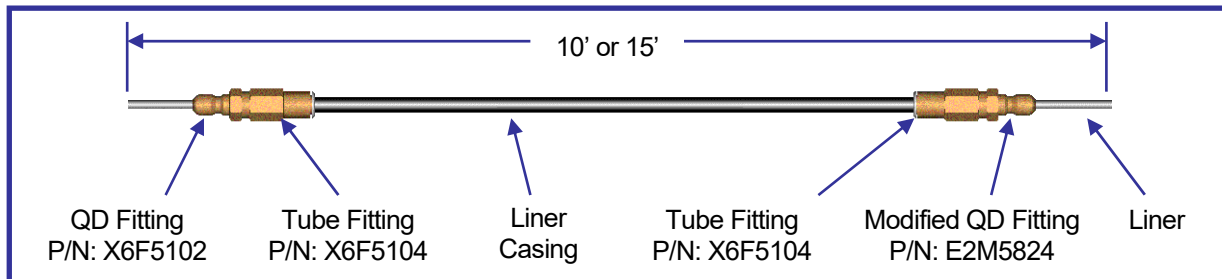
C1 LINER ASSEMBLIES

Our Liner Assemblies are supplied in 10' and 15' lengths for both steel alloy and aluminum wire. They are supplied with quick disconnect fittings for ease of installation to Wire Spool Assembly and Capstan Wire Feeder.

ASSEMBLIES

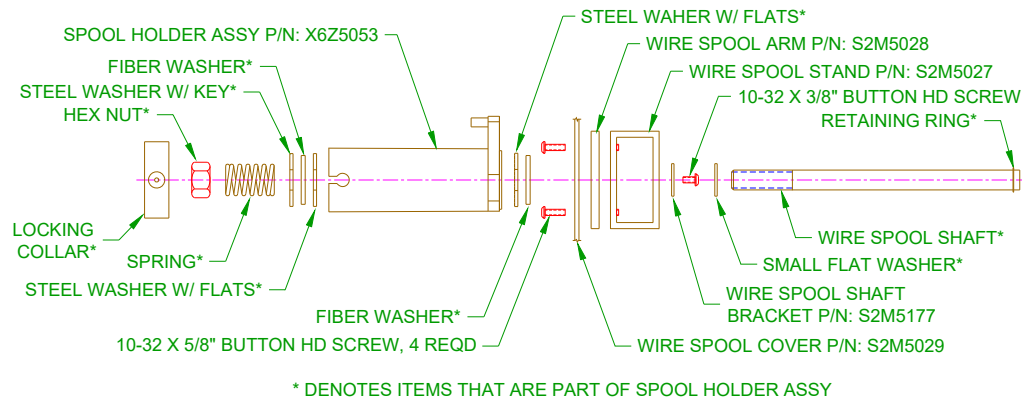
PART NO.	DESCRIPTION
E7A5001	10' Long Assembly for 0.030" – 0.047" Steel Alloy Wire
E7A5002	15' Long Assembly for 0.030" – 0.047" Steel Alloy Wire
E7A5003	10' Long Assembly for 0.052" – 0.062" Steel Alloy Wire
E7A5004	15' Long Assembly for 0.052" – 0.062" Steel Alloy Wire
E7A5005	10' Long Assembly for 0.030" – 0.035" Aluminum Wire
E7A5006	15' Long Assembly for 0.030" – 0.035" Aluminum Wire
E7A5007	10' Long Assembly for 0.040" – 0.052" Aluminum Wire
E7A5008	15' Long Assembly for 0.040" – 0.052" Aluminum Wire
E7A5009	10' Long Assembly for 0.062" Aluminum Wire
E7A5010	15' Long Assembly for 0.062" Aluminum Wire

COMPONENT PARTS



PART NO.	DESCRIPTION
E7C5007	10' Long Liner for 0.030" – 0.047" Steel Alloy Wire
E7C5008	15' Long Liner for 0.030" – 0.047" Steel Alloy Wire
E7C5009	10' Long Liner for 0.052" Steel Alloy Wire
E7C5010	15' Long Liner for 0.052" Steel Alloy Wire
E7C5011	10' Long Liner for 0.030" – 0.035" Aluminum Wire
E7C5012	15' Long Liner for 0.030" – 0.035" Aluminum Wire
E7C5013	10' Long Liner for 0.040" – 0.052" Aluminum Wire
E7C5014	15' Long Liner for 0.040" – 0.052" Aluminum Wire
E7C5015	10' Long Liner for 0.062" Aluminum Wire
E7C5016	15' Long Liner for 0.062" Aluminum Wire
E7C5017	10' Long Liner Casing
E7C5018	15' Long Liner Casing
X6F5104	Tube Fitting
E2M5824	Modified Quick Disconnect Fitting
X6F5102	Male Quick Disconnect Fitting

This assembly will accommodate a 12" diameter welding wire spool. It is supplied with a quick disconnect fitting for easy installation of welding wire liner and casing.



WIRE SPOOL ASSEMBLY - DETAIL "A"

C4 POWER JUNCTION BOX

A Power Junction Box Assembly is required if you are using a water-cooled torch. It provides a convenient method for connecting the user supplied welding power cable, gas and water supply lines required for the CWT water-cooled torches. The Power Junction Box is offered in three configurations depending on your requirements.

ASSEMBLIES

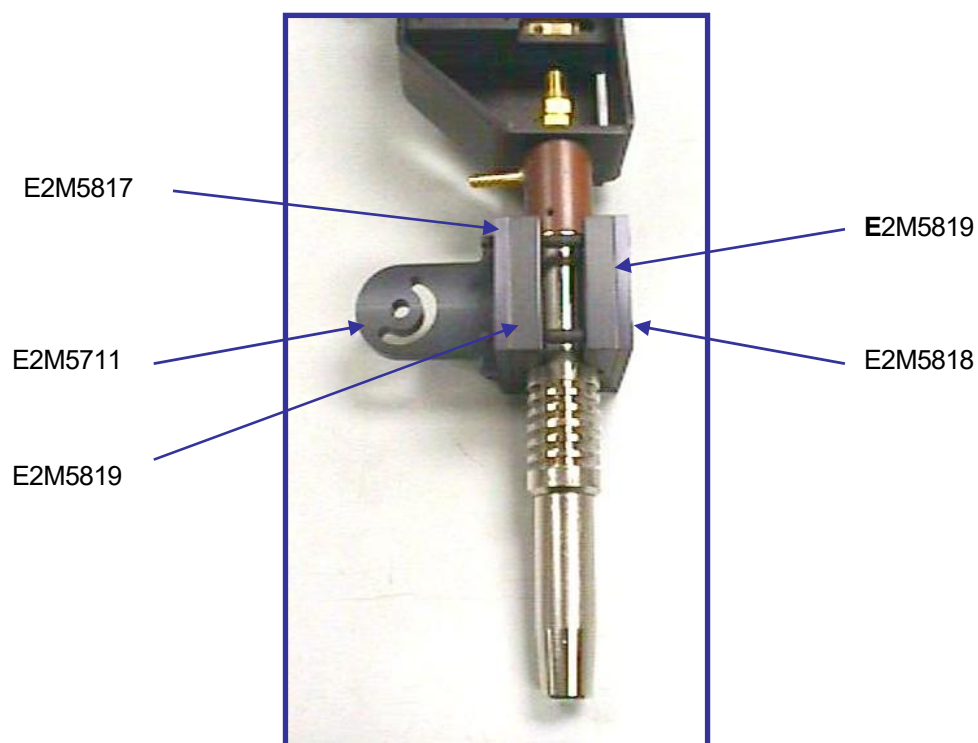
PART NO.	DESCRIPTION
S3A5194	Power Junction Box Assembly with no solenoid valves, with water and power connections
S3A5038	Power Junction Box Assembly with no solenoid valves, with water, gas and power connections
S3A5056	Power Junction Box Assembly with gas solenoid valve with water, gas and power connections
S3A5057	Power Junction Box Assembly with gas & water solenoids valves with water, gas and power connections

APPENDIX D ADJUSTABLE TORCH MOUNT

The Adjustable Torch Mount is a clamp-on torch bracket to fit any welding torch from ¾" to 1-1/2" in diameter.

ASSEMBLIES

PART NO.	DESCRIPTION
E2A5185	Adjustable Torch Mount Assembly



COMPONENT PARTS

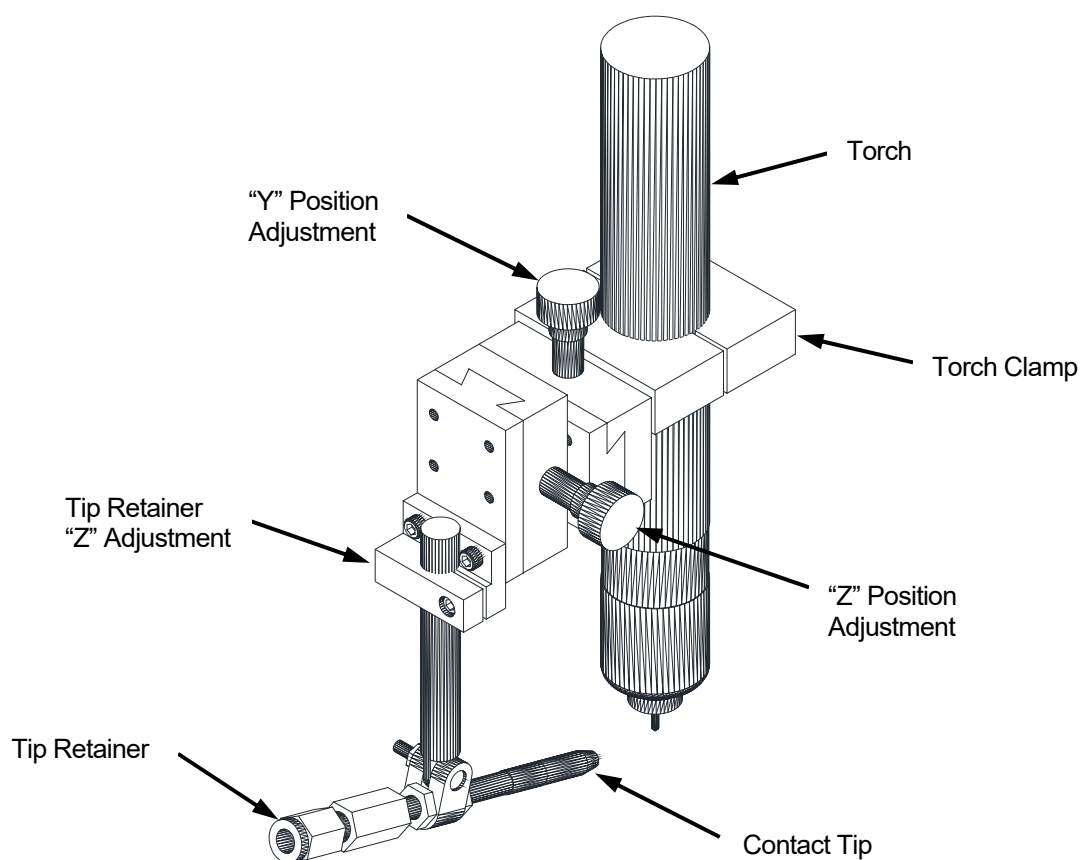
PART NO.	DESCRIPTION
E2M5711	Bracket Arm
E2M5817	Torch Mount Arm Base
E2M5818	Torch Mount Clamp Base
E2M5819	Torch Mount Insulator

APPENDIX E TIG TORCH ARTICULATOR

This TIG Torch Articulator assists you to get a precise wire placement with “X”, “Y” and “Z” adjustments.

ASSEMBLIES

PART NO.	DESCRIPTION
E2A5223	1-3/8" TIG Torch Articulator



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. Aíslese 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 Ihrem 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、又は溶材にヒフやぬれた布で触れないこと。 施工物やアースから身体が絶縁されている様にして下さい。 	<ul style="list-style-type: none"> 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。 	<ul style="list-style-type: none"> 目、耳及び身体に保護具をして下さい。
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条。 使你自己与地面和工件绝缘。 	<ul style="list-style-type: none"> 把一切易燃物品移离工作场所。 	<ul style="list-style-type: none"> 佩戴眼、耳及身体劳动保护用具。
Korean 위험	<ul style="list-style-type: none"> 전도체나 용접봉을 젖은 형갑 또는 피부로 절대 접촉치 마십시오. 모재와 접지를 접촉치 마십시오. 	<ul style="list-style-type: none"> 인화성 물질을 접근시키지 마십시오. 	<ul style="list-style-type: none"> 눈, 귀와 몸에 보호장구를 착용하십시오.
Arabic تحذير	<ul style="list-style-type: none"> لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الألكترود بجسد الجسم أو بالملابس المبللة بالماء. ضع عازلا على جسمك خلال العمل. 	<ul style="list-style-type: none"> ضع المواد القابلة للاشتعال في مكان بعيد. 	<ul style="list-style-type: none"> ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

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

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

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

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

			
<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"> ● ヒュームから頭を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。 	<ul style="list-style-type: none"> ● 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して下さい。 	<ul style="list-style-type: none"> ● パネルやカバーを取り外したまま機械操作をしないで下さい。 	Japanese 注意事項
<ul style="list-style-type: none"> ● 頭部遠離煙霧。 ● 在呼吸區使用通風或排風器除煙。 	<ul style="list-style-type: none"> ● 維修前切斷電源。 	<ul style="list-style-type: none"> ● 儀表板打開或沒有安全罩時不準作業。 	Chinese 警告
<ul style="list-style-type: none"> ● 얼굴로부터 용접가스를 멀리하십시오. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오. 	<ul style="list-style-type: none"> ● 보수전에 전원을 차단하십시오. 	<ul style="list-style-type: none"> ● 판넬이 열린 상태로 작동치 마십시오. 	Korean 위험
<ul style="list-style-type: none"> ● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها. 	<ul style="list-style-type: none"> ● اقطع التيار الكهربائي قبل القيام بأية صيانة. 	<ul style="list-style-type: none"> ● لا تشغيل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه. 	Arabic تحذير

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

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

請詳細閱讀並理解製造廠提供的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.

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

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.

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THE LINCOLN ELECTRIC COMPANY

22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
Phone: +1.216.481.8100 • www.lincolnelectric.com