20W HID Explosion Proof Search Light
C1D1 & C2D1 - 347V AC Stepped Down to 12V DC - 50' SOOW

Instruction Manual

Thank you for your purchase of the Larson Electronics EPL-20W-HID-X12V-347V-GR50.

WARNING:

READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.
CRITICAL SAFETY INSTRUCTIONS:

- INSTALLATION SHOULD ONLY BE CONDUCTED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH NEC AND ANY RELEVANT LOCAL BUILDING CODES.
- RISK OF FIRE OR ELECTRIC SHOCK. FIXTURE INSTALLATION REQUIRES KNOWLEDGE OF FIXTURE'S ELECTRICAL SYSTEMS. IF NOT QUALIFIED, CONTACT A QUALIFIED ELECTRICIAN.
- BE CERTAIN ELECTRICAL POWER IS OFF BEFORE AND DURING INSTALLATION AND MAINTENANCE.
- MAKE SURE THE SUPPLY VOLTAGE IS THE SAME AS THE FIXTURE'S RATED VOLTAGE.
- TO PREVENT WIRING DAMAGE OR ABRASION, DO NOT EXPOSE WIRING TO EDGES OF SHEET METAL OR SHARP OBJECTS. SUITABLE FOR DAMP LOCATIONS.

IMPORTANT

READ CAREFULLY BEFORE INSTALLING THIS FIXTURE. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE. THE EPL-20W-HID-X12V-347V-GR50 MUST BE WIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES. PROPER GROUNDING IS REQUIRED FOR SAFETY.

WE STRONGLY ENCOURAGE ONLY A LICENSED ELECTRICIAN INSTALL, OPERATE AND MAINTAIN THIS PRODUCT. IF YOU ARE NOT QUALIFIED OR UNFAMILIAR WITH ANY ASPECT OF THIS INSTRUCTION SHEET, CONSULT AN ELECTRICIAN. THERE ARE NO SERVICEABLE PARTS INSIDE.

WARNING: MAKE SURE POWER IS TURNED **OFF** BEFORE STARTING THE INSTALLATION OR PERFORMING ANY MAINTENANCE.

RISK OF FIRE/ELECTRIC SHOCK – DISCONNECT POWER AT BREAKER BEFORE INSTALLING OR SERVICING.
RISK OF PERSONAL INJURY – FIXTURE MAY BECOME UNSTABLE OR DAMAGED IF NOT INSTALLED PROPERLY.
RISK OF BURN – ALLOW FIXTURE TO COOL BEFORE SERVICING.

WARNING:

USER SHOULD BE TRAINED IN THE PROPER USE AND MAINTENANCE OF THIS DEVICE. THIS LINE CORD IS INTENDED TO ALLOW OPERATORS TO EXTEND POWER TO EQUIPMENT WHEN STATIONARY OUTLETS ARE NOT READILY AVAILABLE.

IMPROPER USE OF THIS CORD, PLUG, AND RECEPTACLE CAN LEAD TO SERIOUS INJURIES OR DEATH TO PERSONNEL.

PERIODIC INSPECTION OF THE CORD IS NECESSARY.
THE CORD MUST BE ROUTINELY CHECKED FOR CUTS, BREAKS, OR ANY SEVERE ABRASIONS, AND IF ANY ARE FOUND, THE CORD MUST BE REPLACED BEFORE RESUMING USE.

WARNING

TO AVOID THE RISK OF FIRE, EXPLOSION OR ELECTRIC SHOCK, THIS PRODUCT SHOULD BE INSTALLED, INSPECTED AND MAINTAINED BY A QUALIFIED ELECTRICIAN ONLY, IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODES.

TO AVOID ELECTRIC SHOCK:

- BE CERTAIN ELECTRICAL POWER IS OFF BEFORE AND DURING INSTALLATION AND MAINTENANCE.
- PRODUCT MUST BE CONNECTED TO A WIRING SYSTEM WITH AN EQUIPMENT-GROUNDING CONDUCTOR.

TO AVOID EXPLOSION:

- MAKE SURE THE SUPPLY VOLTAGE IS WITHIN THE VOLTAGE RATING.
- ENSURE THE MARKED T RATING IS LESS THAN THE IGNITION TEMPERATURE OF THE HAZARDOUS ATMOSPHERE.
- DO NOT OPERATE IN AMBIENT TEMPERATURES ABOVE THOSE INDICATED ON THE PRODUCT NAMEPLATE.
- DO NOT OPERATE IF THE LENS, CORD, SEALS, HOUSING, RECEPTACLES, ETC. IS CRACKED OR DAMAGED. IF SO, DISCONTINUE USE AND CONTACT MANUFACTURER FOR REPLACEMENT PARTS.
- ALL FASTENERS SHOULD BE PROPERLY SEATED.

WARNING:

USER SHOULD BE TRAINED IN THE PROPER USE AND MAINTENANCE OF THIS DEVICE. WHEN EXTENSION CORD IS CONNECTED TO A POWER SOURCE IN HAZARDOUS AREA, PLUG AND MATCHING RECEPTACLE MUST BE SUITABLE FOR HAZARDOUS LOCATION INVOLVED. IMPROPER USE OF THIS DEVICE, ASSOCIATED PLUG, RECEPTACLE, AND CORD CAN LEAD TO SERIOUS INJURIES OR DEATH TO PERSONNEL.

PERIODIC INSPECTION OF THE RECEPTACLE AND CORD IS NECESSARY.

THE CORD MUST BE ROUTINELY CHECKED FOR CUTS, BREAKS, OR ANY SEVERE ABRASIONS, AND IF ANY ARE FOUND, THE CORD MUST BE REPLACED BEFORE RESUMING USE OF THE UNIT.

ELECTRICAL POWER SUPPLY MUST BE “OFF” BEFORE AND DURING INSTALLATION AND MAINTENANCE. INSTALLATION AND MAINTENANCE PROCEDURE MUST BE PERFORMED BY A TRAINED AND COMPETENT ELECTRICIAN.

IF ANY PARTS OF THE RECEPTACLE OR PLUG APPEAR TO BE MISSING, BROKEN, OR SHOW SIGNS OR DAMAGE, DISCONTINUE USE IMMEDIATELY. REPLACE WITH THE PROPER REPLACEMENT PART(S) BEFORE CONTINUING SERVICE.

WARNING:

USER SHOULD BE TRAINED IN THE PROPER USE AND MAINTENANCE OF THIS DEVICE. IF WIRING OR LAMP REPLACEMENT INSTRUCTIONS ARE NOT FOLLOWED EXACTLY, THE HANDLAMP MAY NOT BE SUITABLE FOR THE HAZARDOUS LOCATION INVOLVED. WHEN HANDLAMP IS CONNECTED TO A POWER SOURCE IN HAZARDOUS AREA, PLUG AND MATCHING RECEPTACLE MUST BE SUITABLE FOR HAZARDOUS LOCATION INVOLVED. WHEN HANDLAMP IS CONNECTED TO POWER SOURCES OUTSIDE OF HAZARDOUS AREA, STANDARD DUTY PLUGS AND RECEPTACLES MAY BE USED.

STANDARD PLUG AND TRANSFORMER MUST ONLY BE CONNECTED TO A RECEPTACLE LOCATED OUTSIDE THE HAZARDOUS AREA!

IMPROPER USE OF THIS HANDLAMP, ASSOCIATED PLUG, RECEPTACLE, AND CORD CAN LEAD TO SERIOUS INJURIES OR DEATH TO PERSONNEL.

PERIODIC INSPECTION OF THE HANDLAMP AND CORD IS NECESSARY.

THE CORD MUST BE ROUTINELY CHECKED FOR CUTS, BREAKS, OR ANY SEVERE ABRASIONS, AND IF ANY ARE FOUND, THE CORD MUST BE REPLACED BEFORE RESUMING USE OF THE HANDLAMP.

THE GLOBE IS MADE OF TEMPERED GLASS. IF THIS GLASS BECOMES SCRATCHED OR CHIPPED IT SHOULD BE REPLACED IMMEDIATELY.

The EPL-20W-HID-X12V-347V-GR50 from Larson Electronics is a handheld inline low voltage explosion proof search light that produces a brilliant light beam capable of reaching over 2,500 feet, making it ideal for inspection and work activities where long range is important. The EPL-20W-HID-X12V-347V-GR50 features 30 feet of cord on a white general application cord reel and an inline transformer enclosed in a Polycase that steps down the input voltage from 347V AC down to 12V DC. The EPL-20W-HID-X12V-347V-GR50 is designed to be hardwired and is safe to use within non-hazardous work areas.

WIRING

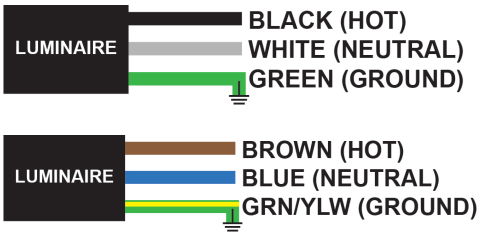
This general use HID search light with cord reel is equipped with 50 feet of 16/3 chemical and abrasion resistant SOOW cord that is fitted with an industrial grade cord cap for easy connection to common wall outlets. Plug options include standard NEMA 24-15 straight blade plug for 347V standard wall outlets, or NEMA L24-20 twist lock plug for twist lock 347V receptacles. Alternatively, we can provide flying leads with no plug for hard wire applications or for operators who prefer to wire in user provided cord caps.

Standard pigtail(flying leads) wiring

We strongly encourage a licensed electrician install this product, in all locations especially in outdoor areas where weatherproofing may be required. Universal voltage driver permits operation at 347V AC stepped down to 12V DC.

Warning: *Check product label for correct input voltage!*

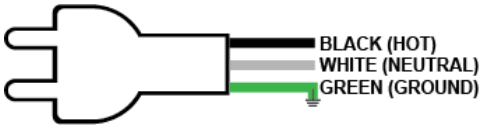
Attach supply line wires to the appropriate light fixture wires as shown in the diagram ➔



Secure each pair of wires according to the diagram. Utilize a junction box or similar device and take precautionary steps for weatherproofing all connections if installed in a location where water may come in contact with the unit. Ensure the unit is properly grounded and that wiring is done according to all local and national electrical/building codes.

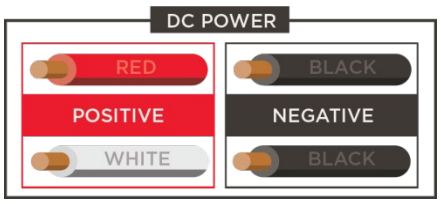
Standard Cord Cap

This unit comes pre-wired from factory with the selected cord cap. Take precautionary steps for weatherproofing all connections if installed in a location where water may come in contact with the unit. All outdoor installations and indoor installations near a wet location require the use of a GFCI device for safety, according to the National Electrical Code® (NEC). Ensure the unit is properly grounded.



Low Voltage DC

Connect power to power supply outputting low voltage at 12 Volts DC. This variable voltage allows greater versatility without affecting light output. Ensure deutsch connectors are properly connected (If applicable)



VOLTAGE

The step-down transformer installed in-line provide the ability to automatically monitor and adjust input current to maintain the correct LED voltage levels regardless of input levels across a specific range. These transformers can operate on current 347V AC. The inline transformer then steps down the input voltage to 12V DC to power the general application searchlight.

When starting the flashlight for the first time (cold start), it is recommended that user allows HID to power up to full (40-60 seconds) before powering off again. This allows the lamp time to achieve a temperature hot enough to vaporize the additives and prevent deposits from forming on the inner arc chamber walls. When powering up, it is normal for the lamp to “flicker”, this is the result of the metal salts in the arc chamber vaporizing. You will also see a slight shade of red and blue. As the light comes to temperature the flickering will subside, the arc will stabilize, and the light output will increase. The light emitted from the flashlight is a higher Kelvin temperature (blue in color) than ordinary flashlights. Full light output occurs in 10-15 seconds. If momentary shut off of the light is needed you can instantly restart the light without worry of damage or cool down. It is suggested not to “flash” the light, as this will shorten run time and lamp life.

INSTALLATION

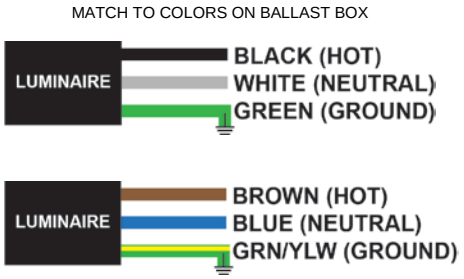
Electrical wiring on the reel must be done by a qualified electrician.



1. Find a suitable location to mount the cord reel and ballast box. Ensure the surface and mounting hardware will be capable of supporting the weight.
2. The ballast box will mount nearby. Within reach of cord.
3. Connect power to approved power source outputting voltage at 347V AC.

   Note: *There is no difference in light output between voltages.*

   - Wire incoming power to ballast box leads. See wire diagram. If required, remove top cover from ballast box.
     Approved conduit should be used and threaded to 5 full threads.
   - Close ballast box if removed. Make sure there are no wires protruding that may be pinched causing a short circuit.
   - All end caps and ballast openings must be closed tightly and sealed.
   - Mount cord reel after successfully completing installation.
4. The light has a power switch and will illuminate once energized and toggled.



If spotlight does not illuminate, check switch, and/or power source.

Keep encapsulated inline transformer box closed during operation. It is not necessary to access the internals unless during maintenance or repair. Maintenance must be performed by a qualified electrician outside the hazardous area.

OPERATIONAL WARNINGS

- Exercise care when handling the cable reel during normal operation. This cable has a rotating spool powered by springs under tension.
- **DO NOT** disassemble the spring motor for any reason. Serious personal injury could result. This cable reel is equipped with springs under tension. Contact the factory for assistance. Toll Free: 1-800-369-6671

CORD REEL MAINTENANCE WARNINGS

- Mounting hardware and fasteners should be installed to maintain tightness under vibration and checked periodically to assure tightness.
- Overhead installation mountings should be such that the reel is not suspended by bolts in tension. A safety chain or cable is strongly recommended to minimize damage and/or possible injury in the event of mounting failure.
- **WARNING:** Modifications of this equipment may cause excessive wear and will void the warranty. Contact the manufacturer regarding changes or modifications of equipment which could affect reliability or safety.



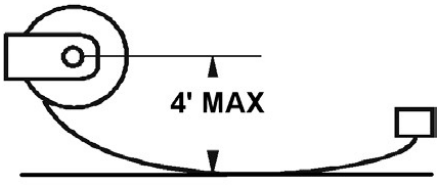
Stretch Applications
The cable is suspended without any intermediate support. Stretch reels generally require a line pull equal to two times the weight of the cable, which allows approximately 10% sag at full extension. On long applications where sag cannot be tolerated, it is sometimes desirable to put supports at intervals of 5 to 10 feet.



Drag Applications
The reel is mounted on a stationary object and is required to drag the cable over the surface to the reel. The cable is supported by the ground or some type of cable tray.



Lift Applications
The cable is lifted vertically in lift applications. The reel is normally designed to handle only the total weight of the cable. Some lift applications may require a ball stop and ratchet to control the length of cable to be retracted.



Retrieve Applications
The reel is mounted on the moving object and winds up or pays out the cable as the machine approaches or moves away from the fixed end. Retrieve applications can be elevated up to 4 feet from the cable support surface.

MOUNTING

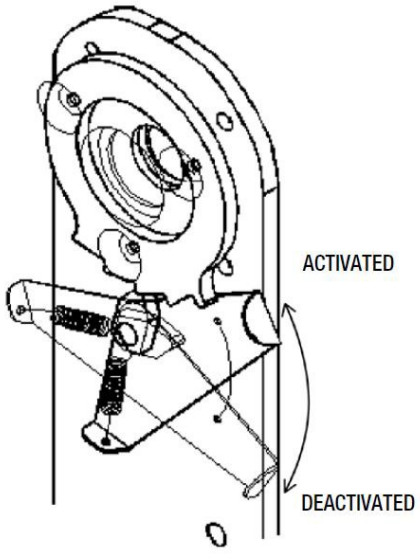
STANDARD MOUNTING

1. The reel may be mounted by bolting the base to any flat surface which is structurally sound enough to support it and the forces of winding and unwinding the cable.
2. The spool drum must rotate on a level horizontal axis.
3. Position the guide arm so that cable payout is perpendicular to the face of cable roller guide. The total cable deflection should not exceed 15° to either side of the centerline of the spool.
4. If deflection is constant to either side of the reel and operation is impaired, re-mount the reel.
5. If the angle of deflection exceeds a Pivot Base should be used, otherwise excessive cable wear and unreliable operation will result.
6. A safety chain is recommended for all overhead installations. Attach the safety chain using the 0.39 hole provided in the base.

ROLLER GUIDE

1. All EXPCRL units are equipped with a roller guide arm. The function of the guide is to center the cable on the spool and to help the reel cable more evenly.
2. The cable should not pile against either end of the spool during winding as this will tend to inhibit level winding of the cable.
3. The guide should be secured at the best of twelve possible positions so that a minimum change of direction occurs at the guide; otherwise, cable life will be reduced.
4. The guide is shipped installed on the reel. The guide must be aligned per application and secured prior to making any electrical connections.
5. Mount the roller guide to the reel over the entrance coupling on the frame. Secure using the provided 3/8-16 hex head cap screw, including the split lock washer. Tighten this to 15 ft.-lbs.

RATCHET



Ratchet Lock
The ratchet lock can be activated or deactivated, depending upon the application.

Operation with Ratchet
The ratchet on the EXPCRL is spring loaded. It is designed to function in all acceptable mounting configurations.

Operation without Ratchet
Deactivate the ratchet by pivoting the lock-out bar to the lower position. This will remove the ratchet pawl from the path of the ratchet plate. Locate the dimple on the lock out bar in the hole provided.

WARNING: Do not activate the ratchet abruptly. Sudden activation may cause excessive shock loads to the ratchet pawl which may cause lock-up and/or breakage.

CABLE INSTALLATION

Cable is factory installed and sealed. Consult factory for changes.

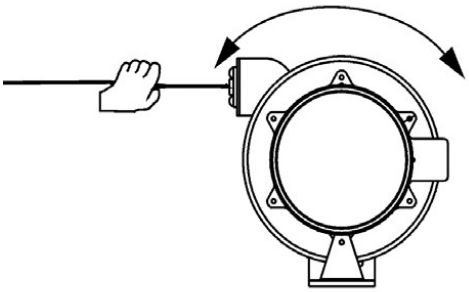
SPRING TENSION ADJUSTMENT

WARNING: Do not allow cable to retract without restraining the retraction speed. Walk the cable back to the reel during the spring tension adjusting process. Always maintain two full cable wraps on drum at maximum cable extension, size cable accordingly.

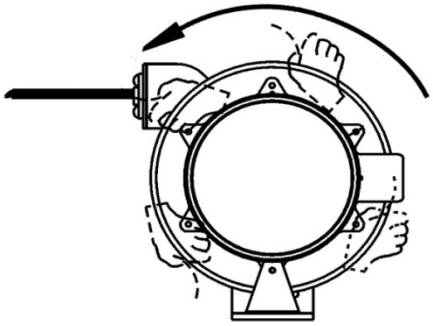
1. The EXPCRL reels come with pre-tension from the factory. Some adjustments may be required to meet specific application requirements.
2. To assure that the cable will retract properly and operate under the correct tension for intended application; the reel should be tested. Securely mount reel before testing with cable installed on drum and end of spool cable not connected, proceed with the next steps.
3. Pull the cable out to the intended travel distance and allow it to rewind. This procedure should be repeated five (5) to ten (10) times in order to set the spring. Walk the cable back to the reel during the spring tension adjusting process.

Rotate Spool while holding Cable to Test the Spring Tension

4. With all the cable wound on the reel, grasp the end of the cable and rotate the drum and cable together in the direction of pay out in order to pre-tension the spring. The number of pre- tension turns is determined by cable size and footage. Usually, four to sixteen turns is sufficient, but additional turns may be used if testing indicates that the cable will not fully retract as desired with just four turns.



Adding Spring Tension



5. Feed the end of the cable through the cable guide and pull the cable out the required length.
6. Repeat steps 3 to 5, if necessary, to add tension. To decrease tension, rotate drum and cable counter-clockwise.

POWER CONNECTIONS

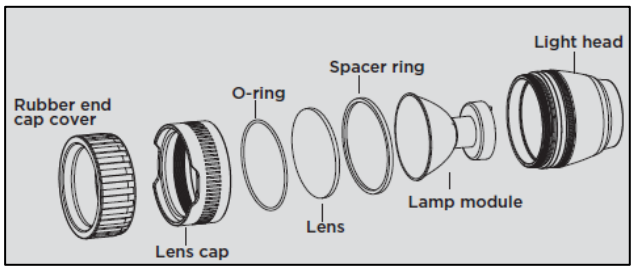
1. Provide power source with over-current protection to prevent overheating of the reel and cable.
2. Reels are supplied with cord to ballast box. Those cords are the same cable as is supplied on the spool. They are factory sealed with explosion proof potting compound and supplied with a watertight strain relief. If a conduit connection is required, the strain relief must be removed and conduit connections made.

OPERATION

1. Do not exceed the voltage or amperage for the cable. Overheating, fire, damage to equipment or personal injury could result.
2. Do not allow cable to retract without restraining the retraction speed.
3. Operate the reel within the cable size and length and spring tensioning limits for which it was intended.
4. Keep two wraps of cable on the reel at maximum extension to avoid excessive tension on the cable and to prevent pullout of cable from entrance watertight.

LAMP AND BALLAST REPLACEMENT

CAUTION NOTICE: Before replacing lamp, make sure the light is "OFF" for a minimum of 10 minutes or longer to ensure any stored power has dissipated, to avoid electric shock from stored energy in the ballast, and temperature of lens has cooled enough to avoid being burned from high temperature.



The lens cap has a "fine thread". Grasp the lamp-head-housing (serrated edge behind lens protector), with one and while grasping the lens cap in the other, rotate the lens cap counter clockwise to access the lamp. While removing the lens cap, be careful not to drop lens, spacer and lamp to avoid damage.

While installing the lamp module, inspect the rubber O-rings for chaffing or breakage, Replace if signs of wear. There is a plastic spacer between the lens and the outer reflector. The flat side faces the lens and the slotted side faces the reflector. Check the rubber seal under the clear lens for wear or breakage, replace if signs of wear. A dab of silicon lubricant or low mineral petroleum jelly should be used on the threads of the light head before replacing the lens cap. Be careful not to cross thread and DO NOT FORCE, or you will void your warranty and your light will be rendered inoperative.

LAMP MAINTENANCE

Check all seals to insure proper seating and all are in good condition, with no marks or dents. Replace all seals as necessary. Lubricate with silicon lubricant or low mineral petroleum jelly. A discoloration of the lamp reflector is normal on a new lamp. When this occurs, remove the lens cap and wipe reflector with soft lens cloth, be careful not to damage the lamp and ignition wire.

CORD REEL MAINTENANCE

WARNING: Be sure all power is off for all maintenance.

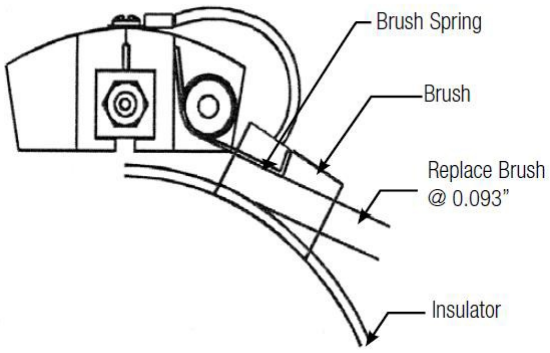
Lubrication

1. All components requiring lubrication are lubricated for life at the factory. Additional lubrication is not required.
2. Do not apply any lubricants or solvent cleaning agents to slip ring, brush or insulator surfaces.

Inspections

1. Periodically check the reel for any loose or missing fasteners. Tighten or replace as necessary.
2. The slip ring assembly should be checked periodically as follows:

- Clean to remove dust and dirt from the slip ring housing area and all slip ring assembly and brush surfaces.
- Brushes should be centered on slip rings and brush springs should be seated in terminal post grooves. Terminal screw connections should be tight. Check for excessive brush wear, Replace brushes as necessary.
- Inspect cable for damage or wear which would make it unsafe to use.



SLIP RING REPLACEMENT

1. **NOTE:** The slip ring assembly should be replaced, not rebuilt, if it becomes damaged.
2. Due to factory sealing of explosion proof unit, slip ring replacement should only be done by the factory.

CABLE REPLACEMENT

1. Cable replacement should only be attempted by the factory. This is due to the cable being epoxy sealed into the entrance ring.

SPRING MOTOR REPLACEMENT

1. **CAUTION:** Do not open the spring motor or personal injury may result.
2. Due to spool cable being sealed in the shaft, spring motors can only be factory rebuilt and replaced.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Reel will not retract cable but has some tension	1. Improper pretension 2. Incorrect reel for application (lift vs. stretch) 3. Cable guide adjustment	1. See section “Spring Tension Adjustment” 2. Quantify application vs. reel selection 3. Check guide alignment
Reel does not have any spring tension	1. Broken spring. Quantify application to prevent recurrence	1. Factory rebuild
Ratchet will not activate	1. Broken ratchet pawl spring 2. Lock-out option arm deactivated	1. Replace ratchet pawl spring 2. Activate lock-out arm
Ratchet will not deactivate	1. Over-extension of reel	1. Manually rotate reel spool to deactivate ratchet. Do not over-extend. (Guide adjustment may prevent lock –up when over-extended
Cable wraps improperly (uneven wrapping, wraps above or jumps flange)	1. Reel mounting no level 2. Cable retraction rate too high 3. Cable guide out of adjustment	1. Mount reel on level surface 2. Maintain steady retraction rate 3. Properly adjust cable guide
Cable twisting and knotting	1. Improperly installed cable 2. Cable rubbing on or bending around fixed object 3. Excessive spring tension 4. Inadequate anchoring of cable	1. See section “Cable Installation” 2. Check roller guide for function and cable payout path 3. Quantify application vs. reel selection Also check pretension 4. Adjust anchoring method i.e. and strain relief
Open or intermittent circuit	1. Inadequate connection 2. Loss of brush contact to slip ring 3. Cable defective	1. Check all termination points 2. Check brush wear, spring tension & alignment 3. Perform continuity check on cable termination points
Circuit trips and/or pitted burned rings or brushes	1. Inadequate amp rating of reel selection	1. Quantify application requirements vs. reel and cable rating
Circuit arcing	1. Amp or voltage above rating of reel 2. Excessive carbon dust accumulation 3. Loss of brush to ring contact	1. Quantify application requirements vs. reel and cable rating 2. Clean dust from inside slip ring 3. Replace brush and/or brush spring

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-800-369-6671 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.