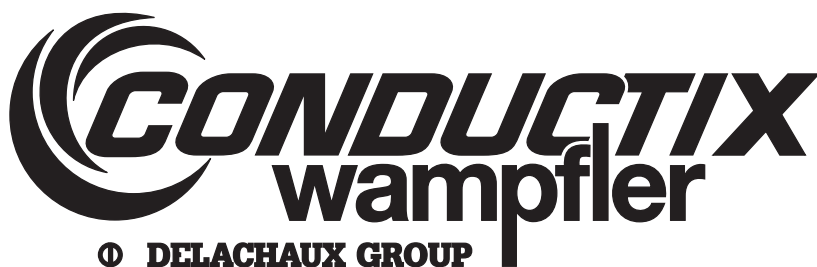
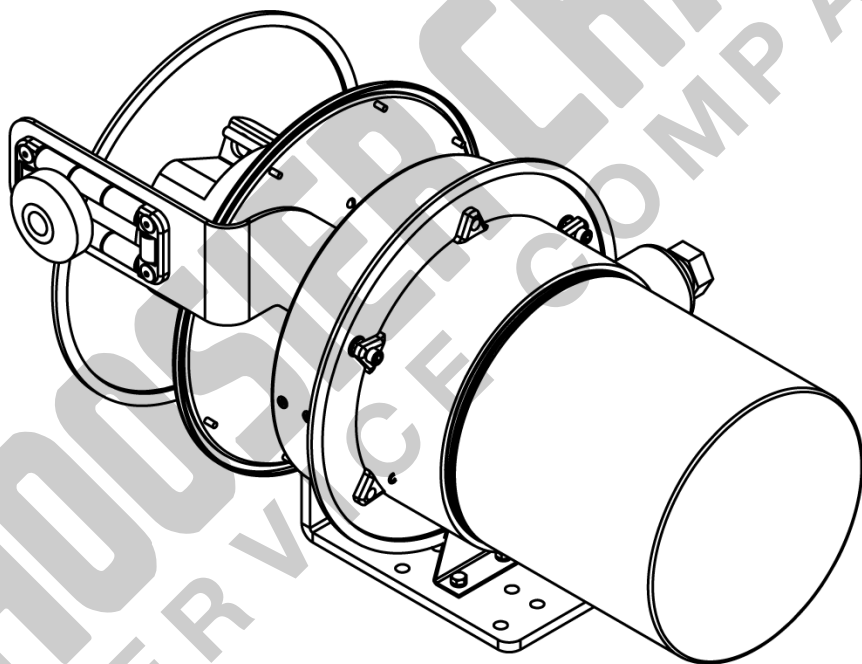


# Hazardous Location Cable Reel Manual

## 1500 Series Power Reel™



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## SECTION 1 - SAFETY

### Safety Information Responsibility

All owner, operator, and maintenance personnel must read and understand all manuals associated with this product before installation, operation, or maintenance.

The manual provides information on the recommended installation, operation, and maintenance of this product. Failure to read and follow the information provided could cause harm to yourself or others and/or cause product damage. No one should install, operate, or attempt maintenance of this product prior to familiarizing themselves with the information in this manual.

### Safety Messages

The following safety messages are used in this manual to alert you to specific and important safety related information.



#### CAUTION

- CAUTION indicates unsafe actions or situations that have the potential to cause injury, and/or minor equipment or property damage.



#### DANGER

- DANGER indicates hazards that have the potential to cause severe personal injury or death.



#### WARNING

- WARNING indicates unsafe actions or situations that have the potential to cause severe injury, death, and/or major equipment or property damage.

#### NOTE

- NOTE is used to alert you to installation, operation, programming, or maintenance information that is important, but not hazard related.



## SECTION 1 - SAFETY

### Electrical Warnings

Properly ground equipment before use in accordance with both the National Electric Code and local electrical codes and ordinances.

Disconnect electrical power from the cable reel before any service functions are performed.

Do not use this cable reel for loads greater than the current rating listed on the label and voltage greater than the slip ring rating. The ampacity (current) rating of the cable must be in accordance with the National Electric Code.

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

### Operational Warnings

Exercise care when handling the cable reel during normal operation. This cable reel 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:

In the U.S. call: 1-800-521-4888

In Canada call: 1-800-667-2487

### Maintenance Warnings

Do not use cable different from that for which the reel is intended. Changes in diameter, weight per foot, length of cable or flexibility will affect the operation of the reel.

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

- Modification 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.





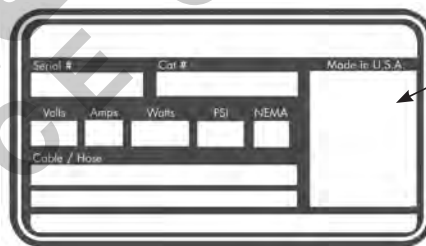
## SECTION 1 - SAFETY

### Electrical Rating

All Reels equipped with cable installed/tested from the factory.

Reels equipped with cable are rated based on the installed cable.

SOW-A (90°C) or SOOW-A (105°C)			
Cable: AWG / # of Cond.	Ampacity	Cable: AWG / # of Cond.	Ampacity
16/2	10	12/2	20
16/3	10	12/3	20
16/4	8	12/4	16
16/5	8	12/5	16
16/6	8	12/6	16
16/7	7	12/7	14
16/8	7	12/8	14
16/10	5	10/2	25
16/12	5	10/3	25
14/2	15	10/4	20
14/3	15	10/5	20
14/4	12	10/6	20
14/5	12	--	--
14/6	12	--	--
14/7	10	--	--
14/8	10	--	--
14/10	7	--	--
14/12	7	--	--



UL label  
if applicable

### Labels & Markings

Every cable reel is marked with a label on the entrance ring which includes the Conductix-Wampfler name and logo, the product catalog number, the individual product serial number.

UL Hazardous Location Listings E193373 (3 and 4 Conductor models with cable installed only):

- Class I, Division 1, Groups C & D (flammable gases or vapors)
- Class II, Division 1, Groups E, F, & G (combustible dusts)
- Class III, Division 1 (easily-ignitable fibers or flyings)
- Class I, Zone 1, AEx d IIB, Ex d IIB

Reels Conform to NEMA 4 standards for applications in wet and dry locations as indicated in the catalog.

The two requirements that follow for UL listed PowerReel products:

- Listed cable reels are intended for commercial/industrial use and are provided with permanent mounting means. They must be wired by a qualified electrician. These cable reels are provided with a 6' feeder cord.
  - » UL listed type SOW-A or SOOW-A, 600V, rated 90°C or 105°C must be used for the supply cable (if flexible cable is used) and for the load end cable (active cable).
  - » The maximum amperage and voltage rating for every cable reel is stamped on the Conductix-Wampfler identification label.



## SECTION 2 - INSTALLATION

### Application Types

#### 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. See **Figure 8-1**.

Reels intended for stretch applications will be supplied with a ratchet that can be disabled for constant tension.

#### Lift Applications

The cable is lifted vertically. 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. See **Figure 8-2**.

#### 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. See **Figure 8-3**.

#### 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. See **Figure 8-4**.

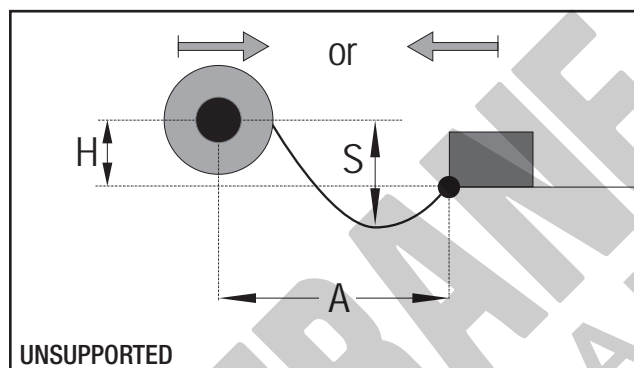


Figure 8-1 Stretch Application

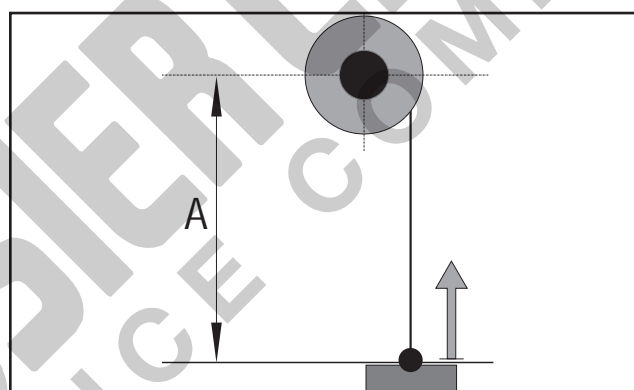


Figure 8-2 Lift Application

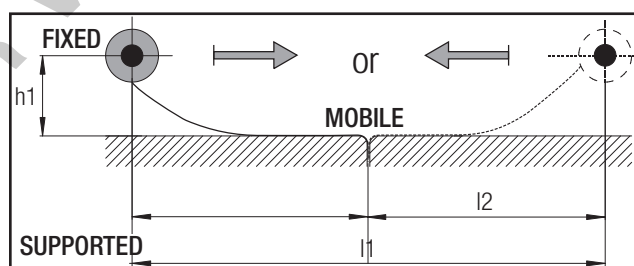


Figure 8-3 Drag Application

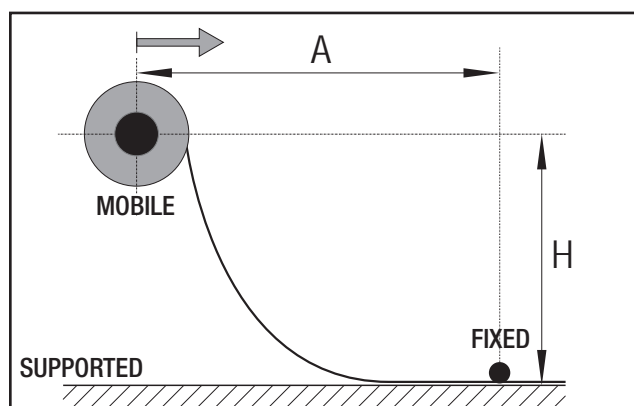


Figure 8-4 Retrieve Application





## SECTION 2 - INSTALLATION

### Mounting

#### Standard Mounting

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.

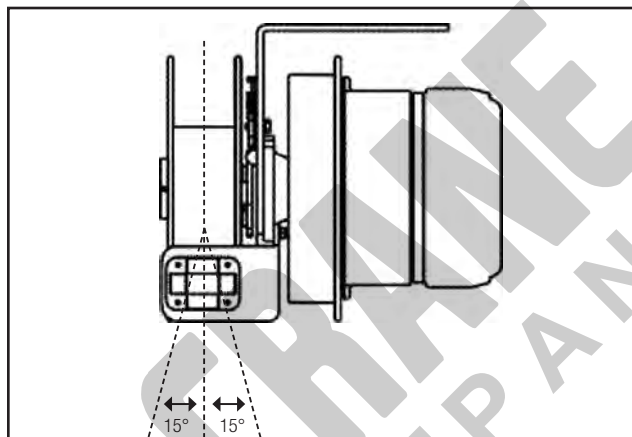
The spool drum must rotate on a level horizontal axis.

Position the guide arm so that cable payout is perpendicular to the face of cable roller guide. The cable deflection should not exceed  $15^\circ$  to either side of the center line of the spool. See **Figure 9-1**.

If deflection is constant to either side of the reel and operation is impaired, re-mount the reel.

If the total angle of deflection exceeds  $30^\circ$  a Pivot Base should be used, otherwise excessive cable wear and unreliable operation will result.

A safety chain is recommended for all overhead installations. Attach the safety chain using the 0.39 hole provided in the base.



**Figure 9-1** Cable Deflection with Roller



## SECTION 2 - INSTALLATION

### Pivot Base Mounting

All 1500 Series Cable Reels can be furnished with a spark proof pivot base to allow the reel to rotate and keep the extended cable perpendicular to the application. See **Figure 10-1**.

The XPVB Pivot Base has the ability to rotate up to 340°. This Pivot Base is not suitable for applications requiring continuous rotation.

A pivot base is required in carousel or loop-track applications.

When a pivot base is used, the reel must be mounted horizontally ("ceiling" or "floor" mounted).

The Roller Guide should be mounted so the cable will travel perpendicular to the axis of rotation. This will guard against the cable twisting and ensure effective swivel action from the pivot base.

Selection of mounting holes should be such that the spool center is in line with the center point of the pivot base.

### Roller Guide

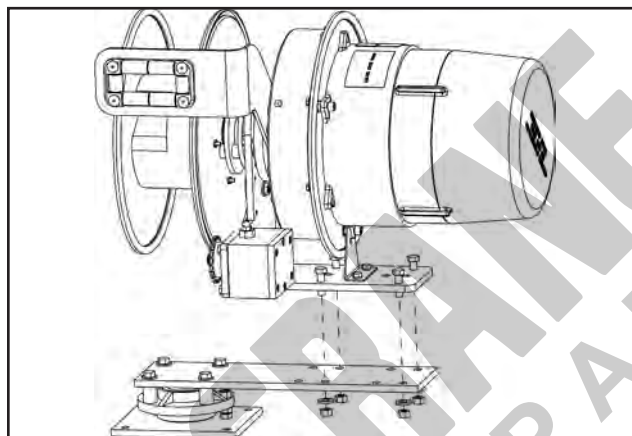
All 1500 Series units are equipped with a roller guide arm. The function of the guide is to center the cable on the spool and to help the reel wrap cable more evenly. See **Figure 10-2**.

The cable should not pile against either end of the spool during winding as this will inhibit level winding of the cable.

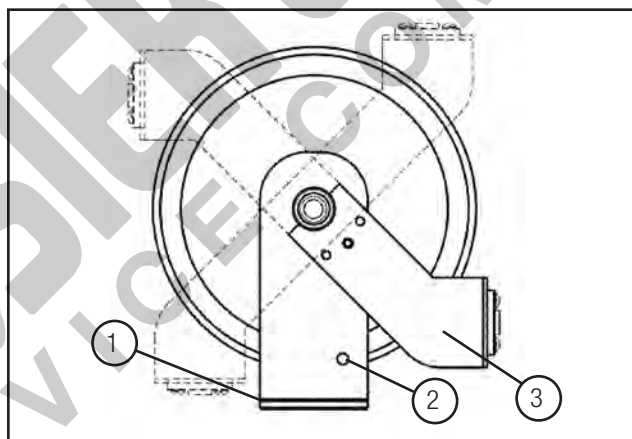
The guide should be secured at the best of twelve possible positions so that a minimum change of direction occurs at the guide; otherwise, cable life will be reduced.

The guide is shipped installed on the reel. The guide must be aligned per application and secured prior to making any electrical connections.

The roller guide mounts to the reel over the shaft coupling on the frame. It is secured using a 5/16-18 hex head cap screw and spring-type lock washer. Torque on this screw is set to 15 ft-lbs.



**Figure 10-1** Reel with Pivot Base



**Figure 10-2**

1. Mounting Base
2. Safety Chain Mounting Hole
3. Roller Guide Arm

## SECTION 2 - INSTALLATION

### Ratchet

#### Ratchet Lock

The ratchet lock can be activated or deactivated, depending upon the application. See **Figure 11-1**.

#### Operation with Ratchet

The ratchet on the 1500 Series Cable Reel 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.

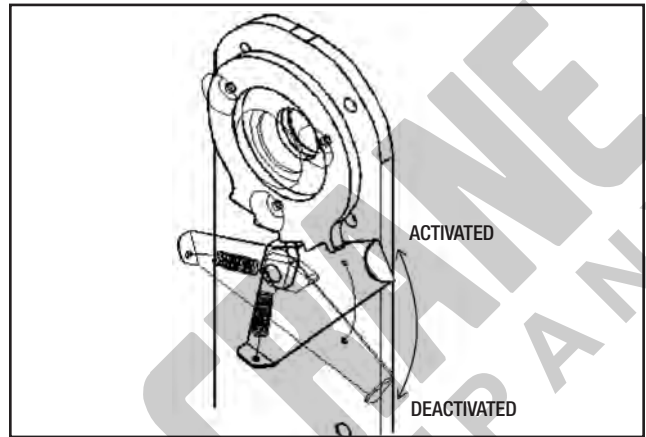


Figure 11-1

### Cable Installation

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

Color Code Chart					
Cond. No.	Base Color	Tracer Color	Cond. No.	Base Color	Tracer Color
1	Green	--	7	White	Black
2	Black	--	8	Red	Black
3	White	--	9	Green	Black
4	Red	--	10	Orange	Black
5	Orange	--	11	Blue	Black
6	Blue	--	12	Black	White

## SECTION 2 - INSTALLATION

### 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.

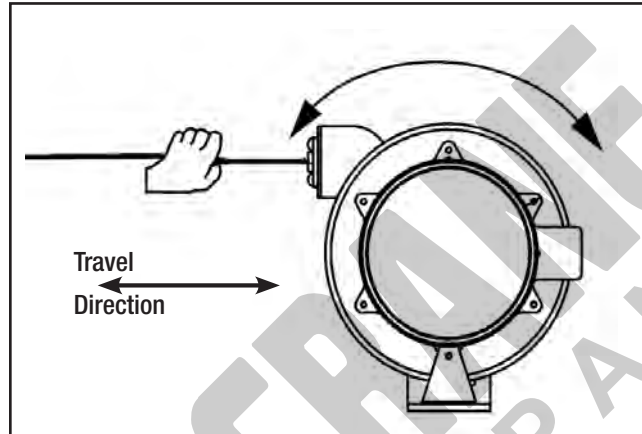
1500 Series reels come with pre-tension from the factory. Some adjustment may be required to meet specific application requirements.

To assure that the cable will retract properly and operate under the correct tension for intended application; the reel should be tested.

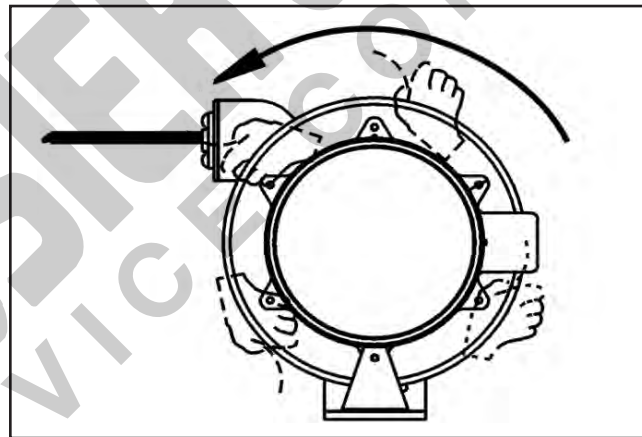
- Securely mount reel before testing with cable installed on drum and end of spool cable not connected.
- Pull the cable out the intended travel distance and allow it to rewind. This procedure should be repeated five (5) to ten (10) times in order to set the spring. Walk the cable back to the reel during the spring tension adjusting process. See **Figure 12-1**.
- 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. See **Figure 12-2**.
  - 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.
- Feed the end of the cable through the cable guide and pull the cable out the required length. Note: Total number of spool revolutions including the pre-tension turns, must not exceed the limits in the following table:

Spring model designation stated in reel description on ID tag invoice and packing slip.					
Models w/#	Available Turns	Set up Turns	Models w/#	Available Turns	Set up Turns
J	23	4	K	29	8
JP	23	4	KP	29	8
JS	46	8	KS	58	16
Consult factory with any questions.					

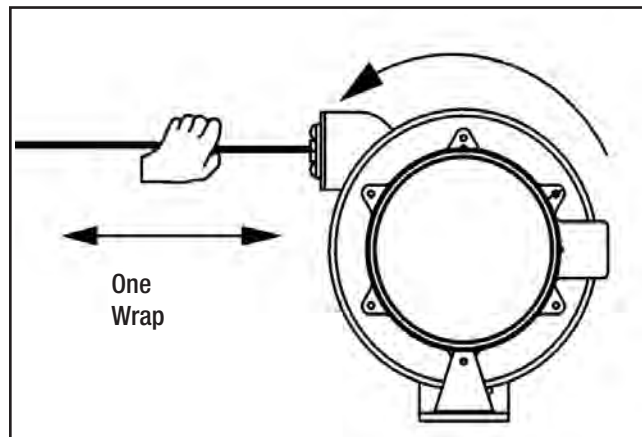
- Repeat steps, if necessary, to add tension. To decrease tension, rotate drum and cable counter-clockwise. See **Figure 12-3**.



**Figure 12-1** Rotate Spool While Holding Cable to Test the Spring Tension



**Figure 12-2** Adding Spring Tension



**Figure 12-3**

## SECTION 2 - INSTALLATION

### Power Connections

Provide power source with over-current protection to prevent overheating of the reel and cable.

Reels are supplied with 6 foot feeder cords. 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.



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## SECTION 3 - OPERATION

- Do not exceed the voltage or amperage rating of the cable. Overheating, fire, damage to equipment or personal injury could result.
- Do not allow cable to retract without restraining the retraction speed.
- Operate the reel within the cable size and length and spring tensioning limits for which it was intended.
- 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.



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## SECTION 4 - MAINTENANCE



### WARNING

- Be sure all power is off for all maintenance.

### Lubrication

All components requiring lubrication are lubricated for life at the factory. Additional lubrication is not be required.

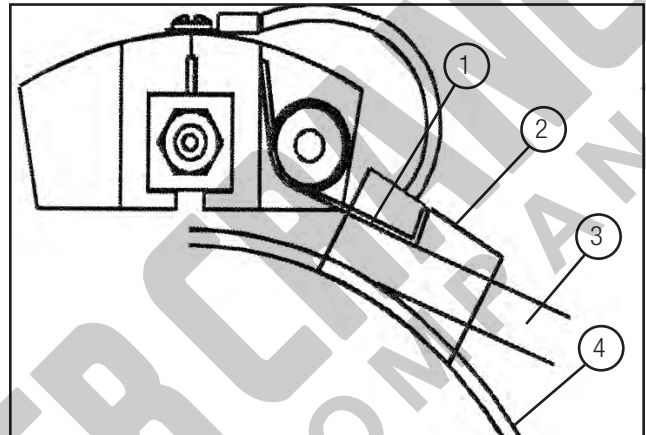
Do not apply any lubricants or solvent cleaning agents to slip ring, brush or insulator surfaces.

### Inspections

Periodically check the reel for any loose or missing fasteners. Tighten or replace as necessary.

The slip ring assembly should be checked periodically as follows:

1. Clean to remove dust and dirt from the slip ring housing area and all slip ring assembly and brush surfaces.
2. 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. See **Figure 15-1**.
3. Inspect cable for damage or wear which would make it unsafe to use.



**Figure 15-1**

1. Brush Spring
2. Brush
3. Replace Brush @ 0.093"
4. Insulator

### Slip Ring Replacement

#### NOTE

- The slip ring assembly should be replaced, not rebuilt, if it becomes damaged.

Due to factory sealing of explosion proof unit, slip ring replacement should only be done by the factory.

### Cable Replacement

Cable replacement should only be attempted by the factory.

### Spring Motor Replacement



### CAUTION

- Do not open the spring motor or personal injury may result.

Due to spool cable being sealed in the shaft, spring motors can only be factory rebuilt, and replaced.



## SECTION 5 - TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Reel will not retract cable but has some tension.	<ol style="list-style-type: none"> <li>1) Improper pretension.</li> <li>2) Incorrect reel for application (lift vs. stretch).</li> <li>3) Cable guide adjustment</li> </ol>	<ol style="list-style-type: none"> <li>1) See Spring Tension Adjustment</li> <li>2) Quantify application vs. reel selection.</li> <li>3) Check guide alignment</li> </ol>
Reel does not have any spring tension.	<ol style="list-style-type: none"> <li>1) Broken spring. "Quantify application to prevent recurrence.</li> </ol>	<ol style="list-style-type: none"> <li>1) Factory rebuild</li> </ol>
Ratchet will not activate.	<ol style="list-style-type: none"> <li>1) Broken ratchet pawl spring.</li> <li>2) Lock-out option arm deactivated.</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace ratchet pawl spring.</li> <li>2) Activate lock-out arm</li> </ol>
Ratchet will not deactivate	<ol style="list-style-type: none"> <li>1) Over-extension of reel.</li> </ol>	<ol style="list-style-type: none"> <li>1) Manually rotate reel spool to deactivate ratchet. Do not over-extend. (Guide adjustment may prevent lock-up when over-extended.)</li> </ol>
Cable wraps improperly (uneven wrapping, wraps above or jumps flange).	<ol style="list-style-type: none"> <li>1) Reel mounting no level.</li> <li>2) Cable retraction rate too high.</li> <li>3) Cable guide out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1) Mount reel on level surface</li> <li>2) Maintain steady retraction rate.</li> <li>3) Properly adjust cable guide</li> </ol>
Cable twisting and knotting.	<ol style="list-style-type: none"> <li>1) Improperly installed cable</li> <li>2) Cable rubbing on or bending around fixed object.</li> <li>3) Excessive spring tension</li> <li>4) Inadequate anchoring of cable.</li> </ol>	<ol style="list-style-type: none"> <li>1) See Cable Installation Section</li> <li>2) Check roller guide for function and cable payout path</li> <li>3) Quantify application vs. reel selection. Also check pretension.</li> <li>4) Adjust anchoring method i.e. and strain relief</li> </ol>
Open or intermittent circuit.	<ol style="list-style-type: none"> <li>1) Inadequate connection.</li> <li>2) Loss of brush contact to slip ring.</li> <li>3) Cable defective.</li> </ol>	<ol style="list-style-type: none"> <li>1) Check all termination points.</li> <li>2) Check brush wear, spring tension &amp; alignment.</li> <li>3) Perform continuity check on cable termination points.</li> </ol>
Circuit trips and/or pitted burned rings or brushes.	<ol style="list-style-type: none"> <li>1) Inadequate amp rating of reel selection.</li> </ol>	<ol style="list-style-type: none"> <li>1) Quantify application requirements vs. reel and cable rating</li> </ol>
Circuit arcing	<ol style="list-style-type: none"> <li>1) Amp or voltage above rating of reel.</li> <li>2) Excessive carbon dust accumulation</li> <li>3) Loss of brush to ring contact.</li> </ol>	<ol style="list-style-type: none"> <li>1) Quantify application requirements vs. reel and cable rating.</li> <li>2) Clean dust from inside slip ring.</li> <li>3) Replace brush and/or brush spring.</li> </ol>

## SECTION 6 - REPLACEMENT PARTS

SLIP RINGS ("D" indicates 600V; "C" Indicates 250V)			
Part No.	Volts	Amps	Conductors
RA-D03-PR	600	35	3
RA-D04-PR	600	35	4
RA-C05-PR	250	35	5
RA-C06-PR	250	35	6
RA-C07-PR	250	35	7
RA-C08-PR	250	35	8
RA-C10-PR	250	35	10
RA-C12-PR	250	35	12

COMPONENTS	
Part No.	Description
X967A	Slip Ring Cover (8.5-M)
42824	Guide Arm for 3.0" wide Drum
42825	Guide Arm for 4.5" wide Drum
42826	Guide Arm for 6.0" wide Drum
42714	Outer Flange
PR91	Ratchet Pawl & Pin
30068A	Slip Ring Brush
02801-P	Brush Holder Kit

## NOTES

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# www.conductix.us

## USA / LATIN AMERICA

10102 F Street  
Omaha, NE 68127

Customer Support  
Phone +1-800-521-4888

Phone +1-402-339-9300  
Fax +1-402-339-9627

info.us@conductix.com  
latinamerica@conductix.com

## CANADA

18450 J.A. Bombardier  
Mirabel, QC J7J 0H5

Customer Support  
Phone +1-800-667-2487

Phone +1-450-565-9900  
Fax +1-450-851-8591

info.ca@conductix.com

## MÉXICO

Calle Treviño 983-C  
Zona Centro  
Apodaca, NL México 66600

Customer Support  
Phone (+52 81) 1090 9519  
(+52 81) 1090 9025  
(+52 81) 1090 9013

Fax (+52 81) 1090 9014

info.mx@conductix.com

## BRAZIL

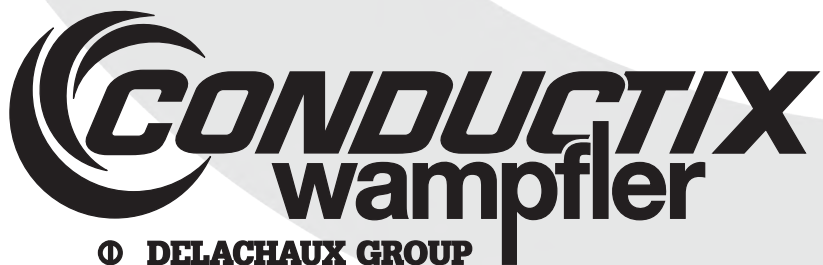
Rua Luiz Pionti, 110  
Vila Progresso  
Itu, São Paulo, Brasil  
CEP: 13313-534

Customer Support  
Phone (+55 11) 4813 7330

Fax (+55 11) 4813 7357

info.br@conductix.com

Contact USA for our Global Sales Offices



DELACHAUX GROUP

