







IMPORTANT SAFETY INSTRUCTIONS

Please read this manual carefully and follow its instructions. Improper use or failure to follow these instructions could result in serious injury, death or property damage. Operators should be instructed in the safe and proper use and maintenance of this product. Keep this manual for future reference.

The following safety precautions call attention to potentially dangerous conditions.

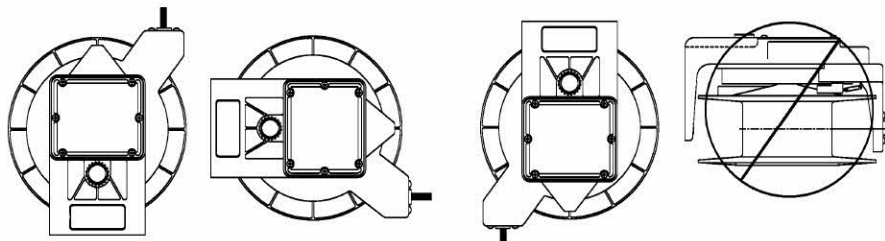
	DANGER: Immediate hazards which WILL result in severe personal injury or death.
	WARNING: Hazards or unsafe practices which COULD result in severe personal injury or death.
	CAUTION: Hazards or unsafe practices which MAY result in <i>minor</i> personal injury or product or property damage.

INSTALLATION

	WARNING: Lock out all electrical power and remove all spring tension from the reel before opening any enclosure or performing any service to this reel. Make sure all circuits carry appropriate fuse protection. Hazards or unsafe practices COULD result in severe personal injury or death.
	WARNING: Failure to read, understand, and follow these instructions creates hazards that COULD result in personal injury or death.
	CAUTION: Instruct operators in the safe, proper use, and maintenance of the reel. Keep this manual for future reference. Hazards or unsafe practices MAY result in <i>minor</i> personal injury or product or property damage.

MOUNTING

The fixed base of the reel allows mounting in several different positions including base up, base down, or wall mounted. Here are general mounting requirements:



- Main-shaft must be horizontal.
- Centerline of the spool assembly must be in line with the cable run.
- When mounted overhead in base up position, add a secondary chain, bracket or other safety device to prevent reel from falling in case the mounting bolts are removed or become loosened by vibration.

	DANGER: A secondary safety cable or chain is to be attached to all reels mounted overhead to prevent reel from falling. Immediate hazards WILL result in severe personal injury or death.
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All reels mounted over head should have a secondary support chain to protect personnel in case of structure or mounting component failure. Attach one end of secondary support chain or cable to secondary support point on reel. Attach other end of secondary support chain or cable to a support component other than that which supports the reel. The chain or cable should be as short as possible allowing reel to drop no more than 6 to 12 inches if the primary connection is released. A secondary support is offered as an accessory item.

PIVOT BASE

If optional pivot base is used, four roller cable guide reel will align reel to direction of cable pull.

WIRING

NOTE: On model 228BH and CSA listed reels--in Canada--, the green wire has been grounded to the frame of the reel and spool, and cannot be used as a power conductor.

A convenient one inch pipe thread opening has been provided at the bottom of the enclosure in base for connecting standard water tight cable connectors or conduit fitting--fittings not supplied. Individual power connections are made to the collector ring bus wires inside the junction box enclosure in base using commercially available twist on wire connectors or compression splices.

amp			220 v		
1 Phase			3 Phase		
Wire	Color	Number	Wire	Color	Number
L1	black	1	L1	black	1
N	white	2	L2	white	2
L3	red	3	L3	red	3
G	green	4	G	green	4

SAFETY INTERNAL GROUNDING

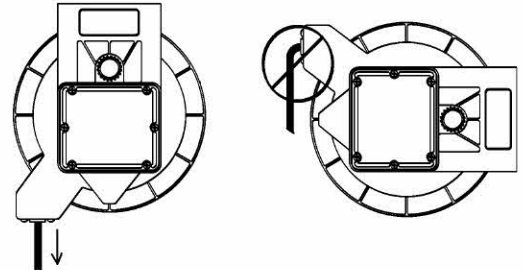
Standard reels are not grounded internally with the exception of reels built to CSA standards and the model 228BH. Internal grounding must be accomplished by running a jumper wire from the brush assembly to the spool grounding screw provided, and attaching the collector ring ground bus to the bolt provided in the junction box enclosure on back of base. See main illustration and diagram.

WIRING SUPPLY CONNECTION

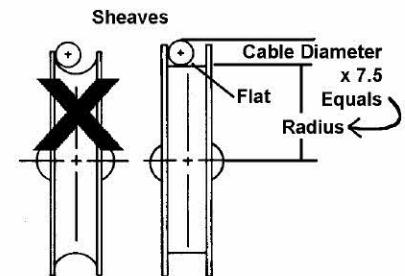
NOTE: See “Service, Working Cable Replacement/Installation” if cable needs to be installed.

ROLLER GUIDE AND SHEAVES

Cable must exit guide in-line with pulling direction. If not, rotate guide arm as needed. The cable guide position is set by rotating spring pocket assembly. Loosen the three clamps holding spring pocket assembly in place by unscrewing the three hex head bolts. Unless required, do not completely remove bolts or clamps. Reposition guide as required, making sure clamps straddle ribs on outside diameter of spring pocket assembly and retighten hex head bolts.



Sheaves are used to bend cable around corners. Typical minimum bend radius of the sheave should be about 7.5 x cable diameter. Requirements can vary depending on cable manufacturer specifications. Sheaves should have flat surfaces for cable to ride on. The movement of cable through a sheave should be in the same plane as the cable spool. Changing planes can greatly reduce cable life.



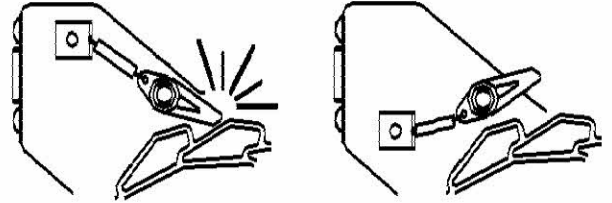
CABLE WINDING

There are many types of cable that may be installed on your cable reel depending on application. Select the cable most appropriate for your application requirements. Many cables come from the factory with a wax-like film that can encourage uneven wrapping. At initial set up it is common to use a dry lubricant (talc powder), or silicone based grease to encourage more even winding. Also critical to proper winding is the adequate setting of “Spring Tension”. See appropriate section. In some cases sheaves and unanticipated application features can require more tension than offered with standard reels. Contact factory for application assistance.

OPERATION

RATCHET LOCK

All models are supplied with a ratchet lock that works in any position. If ratchet lock is not required--constant tension--, move spring clip and spring to adjacent cable guide screw.



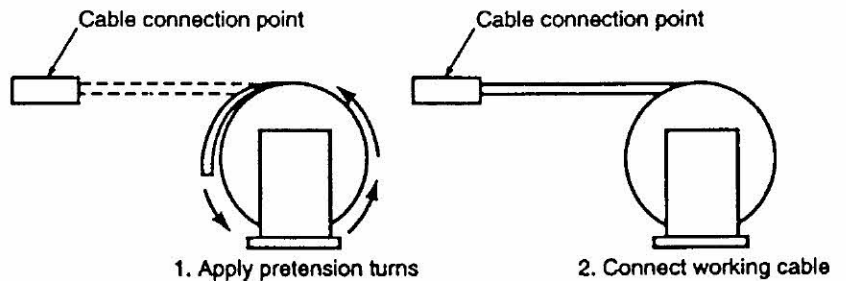
SPRING TENSION

CAUTION: Do not connect working end of cable until the reel is properly pretensioned. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.

CAUTION: Failure to test for adequate spring revolutions can cause spring damage. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.

NOTE: A minimum 2 pre-tension turns is required. Additional turns can added as long as one unused spring turn remains when cable is fully extended. If entire cable cannot be pulled out, decrease spring tension until full one turn remains.

Reels shipped with cable end attachments (handlamps, plugs, etc.) are pre-tensioned at factory. All other reels require pretensioning turns to spool assembly before connecting cable. Set spring tension by turning fully wrapped reel through a specific number of revolutions or turns.



Number of pretension turns depends on application and desired tension. **A minimum of 2 set up turns is needed for most applications.** Additional tension may be added by repeating above process. After tension is set, connect cable free end. Failure to pretension reel may result in insufficient tension to retract and may shorten spring life.

SERVICE

BULB REPLACEMENT--model 228BH

CAUTION: Always check for shorts and continuity before turning on electrical power. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.

Remove guard on hand lamp by removing screws on base of guard.

NOTE: Use a 75-watt or smaller bulb. A rough service bulb is recommended.

MAINSRING


WARNING: Always disconnect electrical power before dismantling any part of the reel. Fuse size must not be greater than maximum amperage capacity of cable. Remove all spring tension before attempting any service. Hazards or unsafe practices COULD result in *severe* personal injury or death.

WARNING: To prevent personal injury, death or property damage, handle all springs with care. Use suitable protective gloves for spring handling. Hazards or unsafe practices COULD result in *severe* personal injury or death.


WARNING: To prevent personal injury, death or property damage, hold center of spring down as the hub is pulled out. If the center is allowed to rise up, the spring may escape from its container. Hazards or unsafe practices COULD result in *severe* personal injury or death.

If reel will not develop tension or retract cable, spring assembly may need to be replaced. Remove junction box cover. Disconnect line-input wires from collector ring bus wires. Also disconnect cable free end and allow spring to unwind completely. Remove screw, shaft retainer, the pull complete spool assembly with cable from base. Remove cable guide, spring clip, ratchet spring, shoulder bolt and ratchet pawl from spring pocket assembly. Remove spring pocket assembly from base and replace with new part. To reassemble, reverse the above procedure making sure the dimple in the shaft retainer is toward the main shaft. Re-tension cable reel as per instructions.

COLLECTOR RING REPLACEMENT

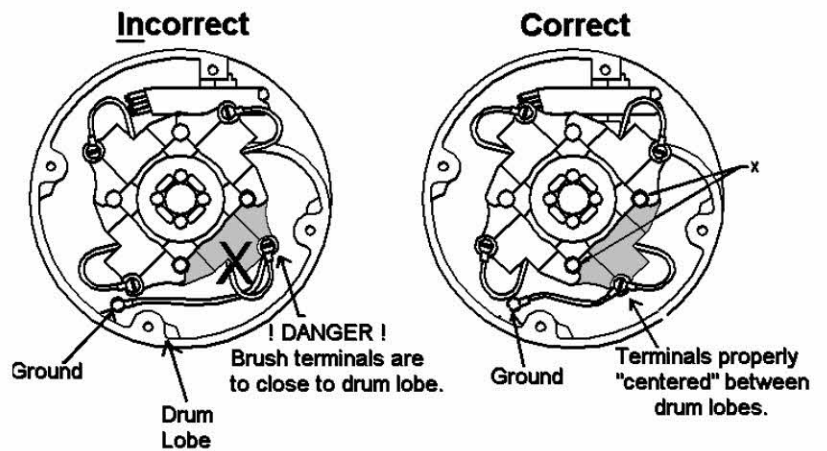
 **WARNING:** Disconnect and lock out all power to reel and remove all tension on spring before servicing collector ring assembly. Hazards or unsafe practices COULD result in severe personal injury or death.

 **CAUTION:** Check continuity and replace all covers before turning on electrical power. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.


 **WARNING:** Check placement of brush holder assemblies to make sure terminal locations are centered between the protruding lobes on the inner and outer drums. Hazards or unsafe practices COULD result in severe personal injury or death.

NOTE: Check position of cable entry in relationship to studs marked by "X" in figure. Replace subsequent brush assemblies in clockwise rotation

To service the collector ring assembly, remove junction box cover and disconnect bus wires in junction box. Remove cover, if required, and outer drum-half. Unclip brush assembly from brush studs and remove. Notice position of brush assembly. Remove all brush assemblies from collector ring. Loosen collector ring set screw & slide collector ring off main shaft. To reassemble, reverse above procedure. The last brush assembly--one closest to steel hub on collector ring--must be assembled on brush studs indicated by the "X" in the figure BELOW.



WORKING CABLE REPLACEMENT/INSTALLATION

 **WARNING:** Disconnect and lock out all power to reel and remove all tension on spring before servicing collector ring assembly. Hazards or unsafe practices COULD result in severe personal injury or death.

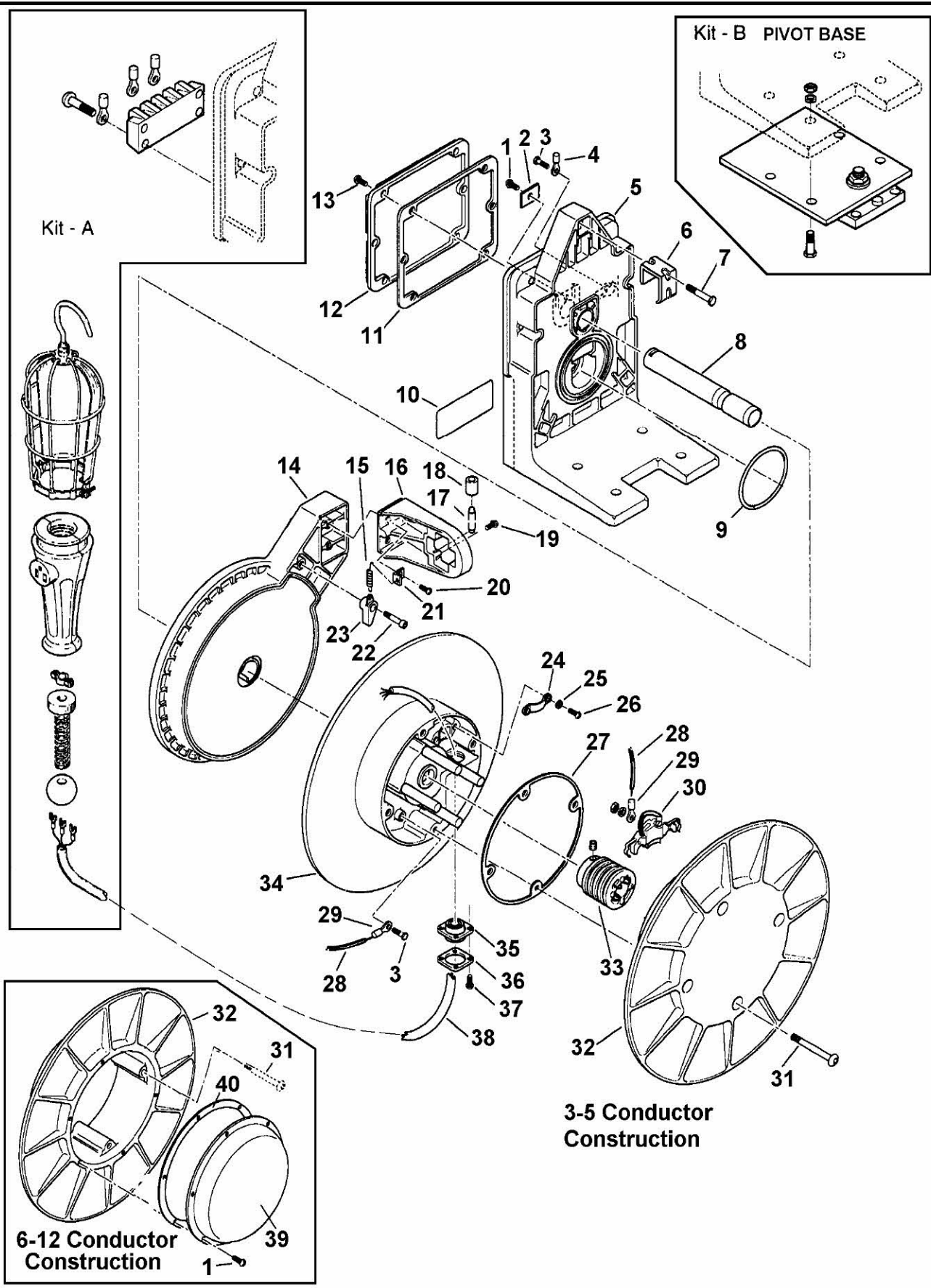
 **CAUTION:** Check continuity and replace all covers before turning on electrical power. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.

NOTE: Cable seal is a bellows type seal designed to fit different size cables. Pull out the bellows in one direction and cut the seal so that the through opening is at least 1/8" diameter smaller than the working cable. Always cut the seal smaller than required. More of the seal may be cut off if necessary.

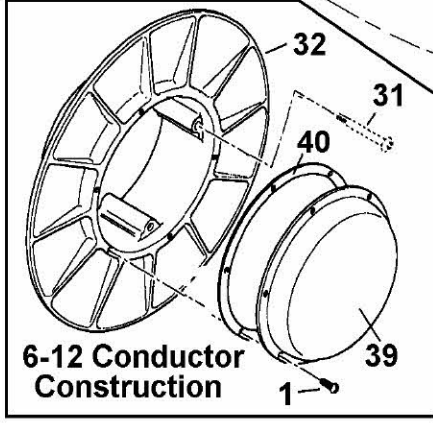
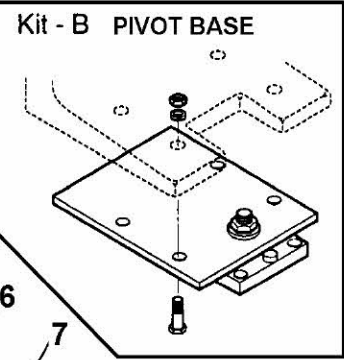
The procedure below applies to both new installations and for replacement of working cable. To install/replace cable loosen seal cover and cable seal. Remove cover, if required, and outer drum half. Loosen or remove cable clamp & individual conductors of working cable from brush assemblies. Pull working cable through opening of inner drum & remove seal cover, & cable seal from old working cable.

Place seal cover and cable seal over replacement cable. To reassemble, reverse the above procedure. Be sure to connect working cable conductors to the proper brush assembly. Re-tension spring .

REPLACEMENT PARTS



Kit - A



3-5 Conductor Construction

POW-R-MITE REEL REFERENCE CHART FOR REELS WITH CABLE INCLUDED.

Pow-R-Mite Model	Pow-R-Matic Model No	Pow-R-Mite includes cable:			
		Cable No.	Ft	Size	O.D.
224B	0951052030	R62110114	31	16-3	.430
228B	0951052030	R62110114	51	16-3	.430
228BM	095105203G	R62110114	51	16-3	.430
231B	0951052030	R62110114	41	16-3	.430
232B	0951052030	R62110114	21	16-3	.430
234B	0951052040	R62110115	31	16-4	.485
238B	0951052040	R62110115	51	16-4	.485
242B	0951052040	R62110115	21	16-4	.485
244B	0951052040	R62110115	41	16-4	.485
206B	0951052060	R62120146	46	16-6	.565
208B	0951052080	R62120148	39	16-8	.645
485B	0951062080	R62120148	51	16-8	.645
403B	0951062100	R62120150	31	16-10	.720
413B	0951062120	R62120151	31	16-12	.740
253C	0951052030	R62110117	26	14-3	.560
332C	0951042030	R62110117	21	14-3	.560
233C	0951052030	R62110117	31	14-3	.560
334C	0951042030	R62110117	41	14-3	.560
358C	0951042030	R62110117	51	14-3	.560
342C	0951042040	R62110118	21	14-4	.605
343C	0951042040	R62110118	31	14-4	.605
344C	0951042040	R62110118	41	14-4	.605

345C	0951042040	R62110118	51	14-4	.605
363C	0951042040	R62110118	26	14-4	.605
367C	0951042040	R62110118	46	14-4	.605
306C	0951042060	R62120179	36	14-6	.740
308C	0951042080	R62120181	21	14-8	.795
483C	0951062080	R62120181	31	14-8	.845
402C	0951062100	R62120183	21	14-10	.905
332D	0951042030	85-1231	21	12-3	.640
333D	0951042030	85-1231	31	12-3	.640
434D	0951042030	85-1231	41	12-3	.640
383D	0951042030	85-1231	26	12-3	.640
385D	0951042030	85-1231	36	12-3	.640
435D	0951062030	85-1231	51	12-3	.640
394D	0951042040	R62110121	31	12-4	.670
342D	0951062040	R62110121	21	12-4	.670
444D	0951062040	R62110121	41	12-4	.670
445D	0951062040	R62110121	51	12-4	.670
463D	0951062060	R62120212	31	12-6	.800
482D	0951062080	R62120214	21	12-8	.915
242E	0951052030	R62110123	21	10-3	.695
433E	0951062030	R62110123	31	10-3	.695
434E	0951062030	R62110123	41	10-3	.695
452E	0951062040	R62110124	21	10-4	.750
443E	0951062040	R62110124	31	10-4	.750
462E	0951062060	R62120237	21	10-6	.880

Reference Number	Part Number	Qty.	Description
1	C03500231	1	Screw pan head M5x12mm
	C03500231	7	Screw pan head m5x12mm #0951-xx-2060, -2080, -2100, -2120, -206S, -208S
2	M41100003	1	Shaft retainer
3	C03510130	2	Bolt hex head M5x10mm
4	00041P0127	1	Terminal - 0951-xxxx- for #10-#12 AWG wire
	00041P0126	1	Terminal - 0951-xxxx- for #16-#14 AWG wire
5	M04160004	1	Base
6		3	Clamp-Included in Clamp Kit "D" below.
7		3	Bolt hex head M6-Included in Clamp Kit "D" below.
8	M34370002	1	Main shaft - 0951-xx-2030, 2040, 203S, 204S
	M34370003	1	Main shaft - 0951-xx-2060, 2080, 206S, 208S
	M34370004	1	Main shaft - 0951-xx-2100, 2120
9	C47040141	1	O-ring
10		1	Name plate
11	M14240007	1	Junction box gasket
12	M04540004	1	Junction box cover
13	C03500253	6	Screw pan head M6x16mm
14	H41220074	1	Spring pocket assembly -- 0951-04
	H41220075	1	Spring pocket assembly -- 0951-05
	H41220076	1	Spring pocket assembly -- 0951-06
	H41220078	1	Spring pocket assembly -- 0951-08
	H41220079	1	Spring pocket assembly -- 0951-09

15	C60610121	1	Extension spring
16	M04730007	1	Cable guide frame See Kit "E"
17	M24060125	4	Roller shaft See Kit "E"
18	M86700006	4	Roller See Kit "E"
19	C03500253	4	Screw pan head M6x16mm See Kit "E"
20	C03500255	2	Screw pan head M6x20mm See Kit "E"
21	M53350002	1	Spring clip
22	C15070225	1	Screw shoulder M8x10x16
23	M86750002	1	Ratchet pawl
24	M70780007	1	Cable clamp
25	C01070517	2	Flat washer M5
	C03500233	2	Screw pan head M5x16 – Cable OD .380-.539
26	C03500235	2	Screw pan head M5x20 – Cable OD .540-.699
	C03500237	2	Screw pan head M5x25 – Cable OD .700-.925
27	M14210026	1	Drum gasket -- Included in Drum Kits "C" below
28	R61210586	.5 ft	Wire - green #10 -- ground only
29	00041P0126	2	Terminal - ground only -- AWG #16 and #14
	00041P0127	2	Terminal - ground only -- AWG #10 and #12
30	6050500000	AR	Copper brush assembly - quantity one per 9th digit
	6155000000	AR	Silver tipped brush assembly - quantity one per 9th digit
31		4	Screw -- Included in Drum Kits "C" below
32		1	Outer drum half – Included in Drum Kit "C" below
	5856700021	1	Collector ring subassembly -- 0951-xx-2030
	5856700022	1	Collector ring subassembly -- 0951-xx-2040
	5856700023	1	Collector ring subassembly -- 0951-xx-2060
	5856700024	1	Collector ring subassembly -- 0951-xx-2080
	5856700009	1	Collector ring subassembly -- 0951-xx-2100
33	5856700011	1	Collector ring subassembly -- 0951-xx-2120
	H96420102	1	Silver collector ring subassembly -- 0951-xx-203S
	H96420103	1	Silver collector ring subassembly -- 0951-xx-204S
	H96420105	1	Silver collector ring subassembly -- 0951-xx-206S
	H96420107	1	Silver collector ring subassembly -- 0951-xx-208S
	H96420108	1	Silver collector ring subassembly -- 0951-xx-210S
	H96420109	1	Silver collector ring subassembly -- 0951-xx-212S
34		1	Inner drum half -- Included in Drum Kit "C" below
35	M86550002	1	Cable seal
36	M37810027	1	Seal cover
37	C03500201	4	Screw, cheese head M4x12mm
38	see chart	AR	Cable
39	5876200000	1	Cover -- 0951-xx-206, -208,
	5876100000	1	Cover -- 0951-xx-210, -212
40	4350600000	1	Gasket -- 0951-xx-206, -208, -210, -212,
Kit A	H05010001	1	Hand lamp kit and terminal, 228BM
Kit B	PB2A	1	Pivot base – optional
Kit C	H05040001	AR	Drum Kit - 3, 4 & 5 Cond. – Includes Reference Numbers 27, 31, 32 & 34
	H05040002	AR	Drum Kit - 6 & 8 Cond. -- Includes Reference Numbers 27, 31, 32 & 34
	H05040003	AR	Drum Kit - 10 & 12 Cond. – Includes Reference Numbers 27, 31, 32 & 34
KIT D	H05040013	1	Clamp Kit; 3 Sets, Stainless Steel-Includes Reference Numbers 6 & 7.
KIT E	H26340009	1	Roller Guide Kit Reference Numbers 16, 17, 18, 19 & 20.

Above parts are all painted Yellow

