Aero-Motive Company

A Woodhead Industries, Inc. Subsidiary

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 *minor* personal injury or product or property damage.**

INSTALLATION

MOUNTING

Cable Reel is equipped with a fixed base, and can be mounted base up or down maintaining base parallel with ground or mounting surface. Reel must be mounted with main shaft horizontal and level. Centerline of spool must be in line with cable run. When a Reel is mounted overhead it is highly recommended a secondary support bracket or other device be used to prevent reel from falling if mounting bolts are removed, or loosened due to vibration.

WORKING CABLE INSTALLATION

DANGER:	**Lockout all electrical power and remove all spring tension from reel before opening any enclosures. Fuse protection should be installed. Immediate hazards WILL result in severe personal injury or death.**

Remove junction box cover and cable clamp attached to spool. Strip outer jacket of cable approximately 5 inches. Loosen watertight connector until cable will slide through. Insert stripped end of cable between flanges of spool. Then between two spokes, by cable clamp, and then through watertight connector into junction box, until outside jacket extends about ½" into the enclosure. Tighten watertight connector. Connect individual leads of working cable to lead wires from mainshaft in junction box. Allow approximately a 5-inch loop of working cable between watertight connector and spool to relieve tension, then secure cable to spoke with cable clamp. Back wind the spool manually until all cable has been wound onto drum. When reverse winding the spool, a clicking sound can be heard as the spring disengages from driving hubs in spring motor. All springs will re-engage properly when the cable is pulled out from spool. Replace junction box cover, making sure all gaskets are in position and fasteners are tightened securely. Tighten watertight connector.

POWER SUPPLY CABLE

DANGER:	**Lockout electrical power and remove all spring tension from Reel before opening any enclosures. Fuse protection should be installed. Immediate hazards WILL result in severe personal injury or death.**

Remove junction box cover. Strip outer jacket of cable approximately 5-inches, possibly more may be required depending on number of conductors. Bring cable with watertight connector through threaded hole in the junction box. Connect proper supply conductors to corresponding lead wires from slip ring assembly. Replace cover of junction box, making sure all gaskets are in position and fasteners are tightened securely.

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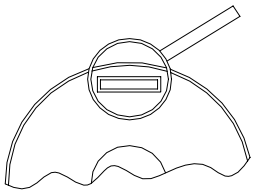
PRE-TENSIONING SPRING MOTOR (S)

CAUTION: **Never apply so many turns that the springs are worked to the end of their travel. Always leave several turns between the end of the spring and the position of the drum when the cable is fully extended. If the spring reaches the end of its travel before satisfactory tension is achieved, consult factory. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.**

NOTE: All spring motors must have the same number of setup turns and the same counter readings. If the number of setup turns is unknown, decrease tension to zero and repeat Pre-tensioning procedure. Removing turns from spring DOES NOT DECREASE turns on counter.

3,000 series cable reels are not pre-tensioned at factory. It will be necessary to apply set-up turns to motor There are two methods of determining the proper number of pretension turns to be applied to cable reel:.

A. There is and instruction plate located on flange. This instruction plate states the maximum number of turns available in reel. The instruction plated also has a space for number of set-up turns to pre-tension reel. (if this box is blank, go step **B or C.**)



B. Simplified Method: Apply 2 set up turns per spring in motor. The 4th digit of model is number of springs. 4th digit =3 needs 6 set up turns and so on. Only exception is 4th digit = 0, this is a 10 spring motor.

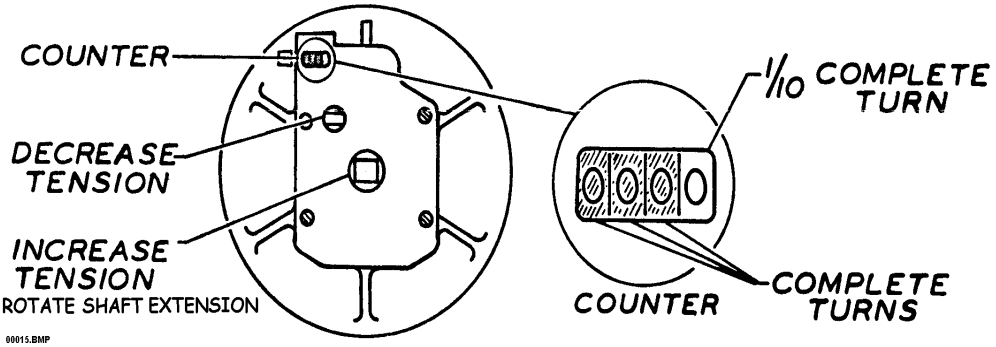
C. Mathematical Method: Determine number of turns of drum required to wrap up cable. Determine maximum turns available = 10 x 4th digit (# of springs in motor). 4th = 6 = 60 maximum turns. Only exception is 4th digit = 0, this is a 10 spring motor. Subtract number of turns to wrap cable on drum from the maximum turns available. Divide this by two for the number of spool set-up revolutions. Normally tension is applied at the spring motor. Number of spring motor set up turns is calculated by taking the 5th and 6th digits of reel model number and corresponding factor form the chart below.

Multiply this factor by the spool set up revolutions to get the spring motor set turns.

Find the 5th and 6th digits of the model number, then refer to the chart below:

DIGITS 5 & 6: FACTOR	DIGITS 5 & 6: FACTOR	DIGITS 5 & 6: FACTOR
10 or 50= 1.0	17 or 57= 1.7	26 or 66= 2.6
12 or 52= 1.2	20 or 60= 2.0	30 or 70= 3.0
13 or 53= 1.3	22 or 62= 2.2	36 or 76= 3.6
15 or 55= 1.5	23 or 63= 2.3	40 or 80= 4.0
16 or 56= 1.6	25 or 65= 2.5	45 or 85= 4.5

After cable has been properly wrapped on spool, the pre-tension, set-up turns are applied. Make sure counter is set at 0000. Using a wrench, or bar, the shaft extension located at the rear of the motor is rotated until the above figure is reached. The counter record s whole turns and tenths of a turn (much the same as an odometer in a car). See diagram below.



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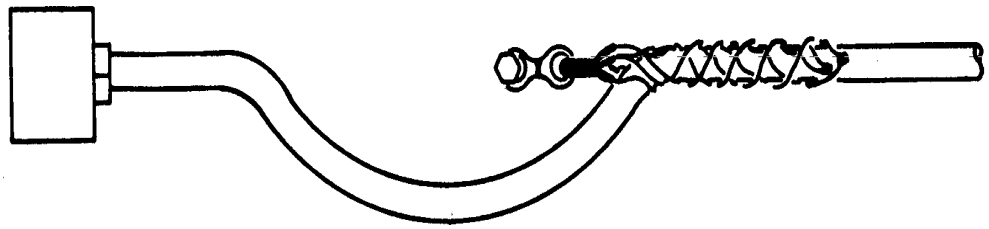
CABLE ANCHORING

When anchoring the cable, a grip should be incorporated in such a way as to allow a slack in the cable prior to entering the connection points. See illustration below.



SERVICE

CAUTION: Before performing any service, always lock out electrical power, and remove all reel spring tension. Hazards or unsafe practices MAY result in *minor* personal injury or product or property damage.

SPRING MOTOR REPLACEMENT

WARNING: To prevent personal injury, death or property damage, handle all springs with care if it is necessary to disassemble the spring motor. Hazards or unsafe practices COULD result in *severe* personal injury or death. Before servicing spring motor, read spring motor instruction sheet SM0082-02

Return all cable to reel or bring mobile equipment to the maximum "in" position (closest to reel). Relieve all tension on motor; to be replaced by an up, and down motion in the external decrease tension knob. It is similar to a car jack. (A motor with a broken spring will have no tension). Support the spring motor adequately, then remove the rear support brackets and hardware. Also, remove the four nuts and lock-washers from the motor supports studs. Slide the motor back and disengage from jackshaft assembly. Install new spring motor, being sure milled slot in motor is engaged to shaft of jackshaft. Replace all hardware. Re-tension the spring motor as described in previous paragraphs.

COLLECTOR RING REPLACEMENT

DANGER: Disconnect and lockout all power. Remove all spring tension from reel before opening any enclosures. Immediate hazards WILL result in severe personal injury or death.

CAUTION: Check continuity and replace all covers before turning on electrical power.

Remove collector ring covers by removing bolts as necessary. Disconnect lead in wires from slip ring leads on slip ring. Disconnect lead wires from main shaft to collector ring leads. Loosen the two setscrews on collector ring collar and slide collector ring from main shaft. Refer to Collector Ring Instruction sheet before attempting repairs. Reverse above procedure to re-assemble. Collector ring should be snug against lip of main shaft.

SPOOL REPLACEMENT

DANGER: Disconnect and lockout electrical power. Remove all spring tension from reel before opening any enclosures. Immediate hazards WILL result in severe personal injury or death.

Return all cable to reel or bring mobile equipment to maximum "in" position (closest to reel). Relieve all tension on all spring motors by turning the external tension adjustment nut until the counter reads 0000. Remove slip ring covers, and collector ring accordingly. Disconnect working cable from collector ring bus bars, and junction box. Remove all cable from spool. Coil cable neatly on the ground so not to damage individual conductors. Remove junction box from spool end of main shaft and retaining ring. Loosen setscrews in drum hub. Slide complete spool from main shaft. Be sure to retain key for replacing. Replace spool and reassemble by reversing above procedure.

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SPROCKET OR CHAIN REPLACEMENT

NOTE: Continue the previous disassembly.

Remove seal cover and felt seal from around main shaft. Remove chain cover being sure not to damage gaskets. Disconnect chain and lay in a clean area. Loosen setscrews in sprocket hub and remove/replace in the same fashion. Re-assemble reel by reversing above procedure. Follow installation instructions for cable tensioning and motor adjustment.

JACK-SHAFT OR BEARING REPLACEMENT

NOTE: Continue the previous disassembly.

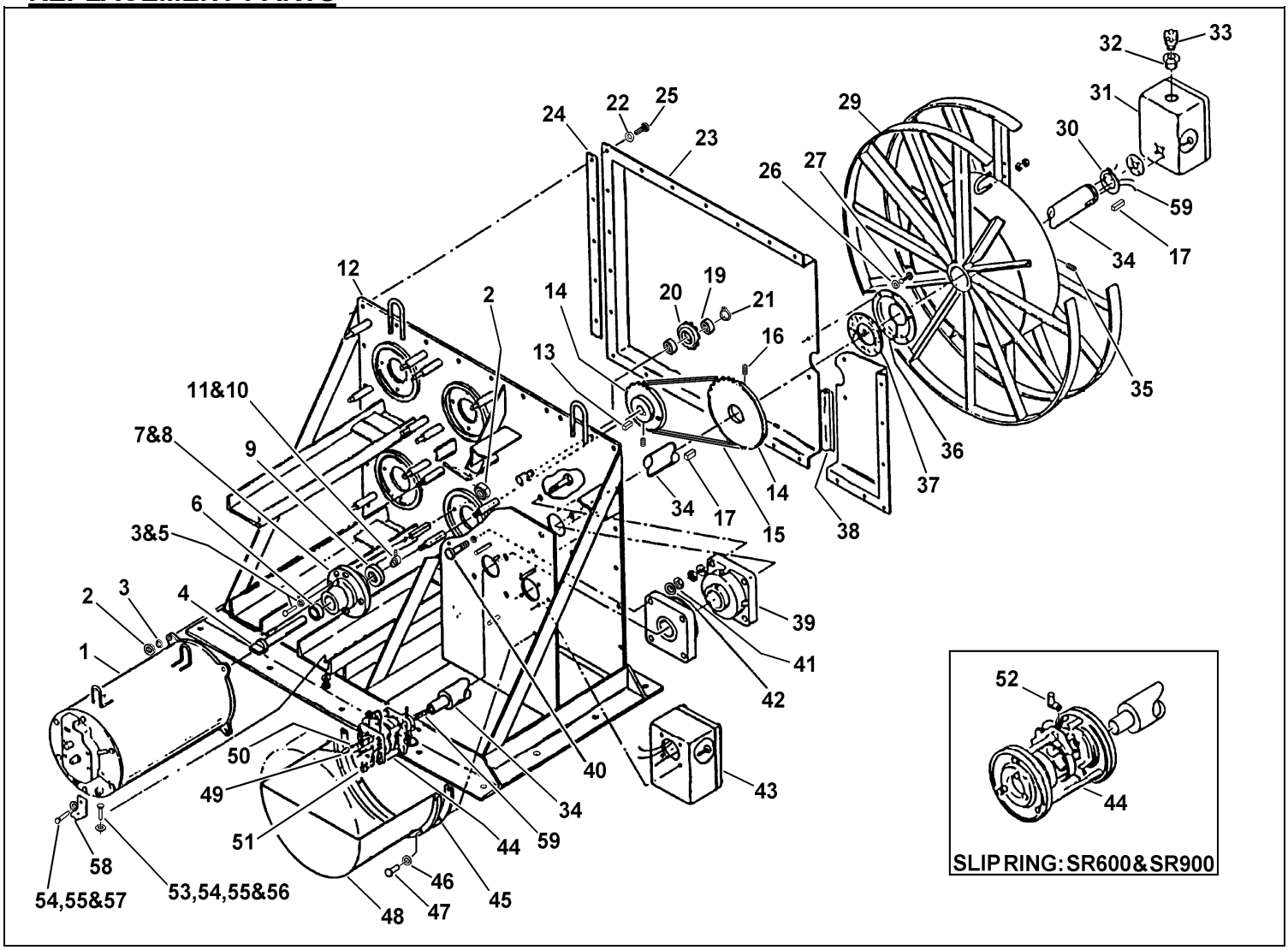
Remove spring motor as described in previous paragraphs. Remove the four bolts holding the bearing assembly to frame plate. Pull housing from centering ring on frame. Remove set collar, and slide shaft from bearing assembly and bearings from housing. Re-assemble jackshaft housing and reel by reversing the above procedures. Follow installation instructions for cable tensioning and motor adjustment.

MAIN SHAFT OR BEARING REPLACEMENT

NOTE: Continue the previous disassembly.

Remove collector ring, spool and cover in accordance with previous instructions. Loosen setscrews on driven sprocket hub and remove sprocket from main shaft. Loosen setscrews in bearing inner race and withdraw main shaft from frame. Replace shaft or bearings, re-assemble by reversing the above procedures. Follow installation instructions for cable tensioning and motor adjustment.

REPLACEMENT PARTS



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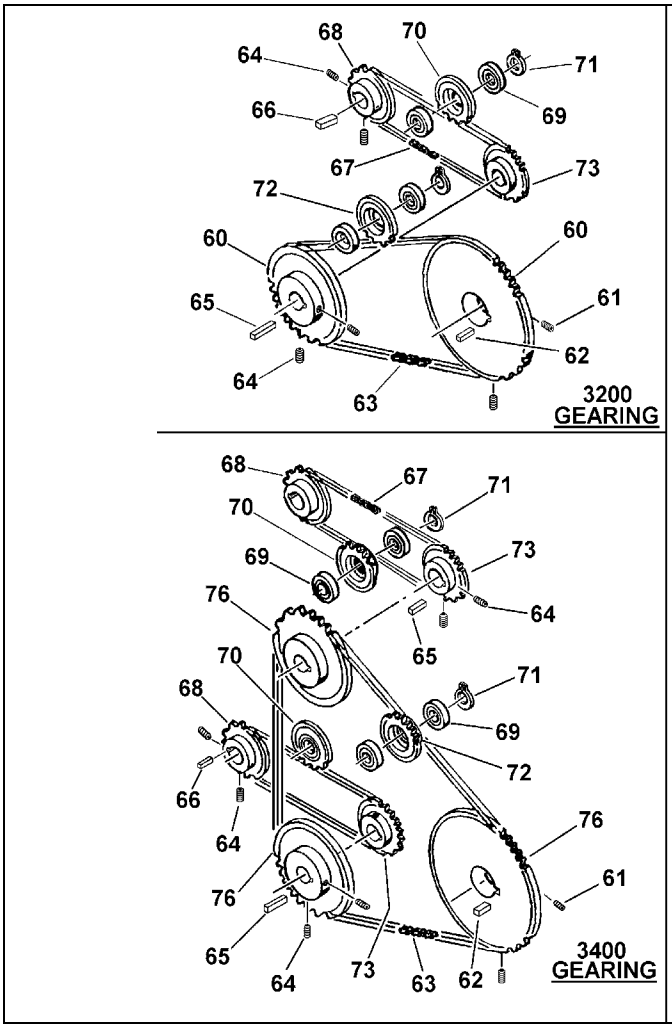
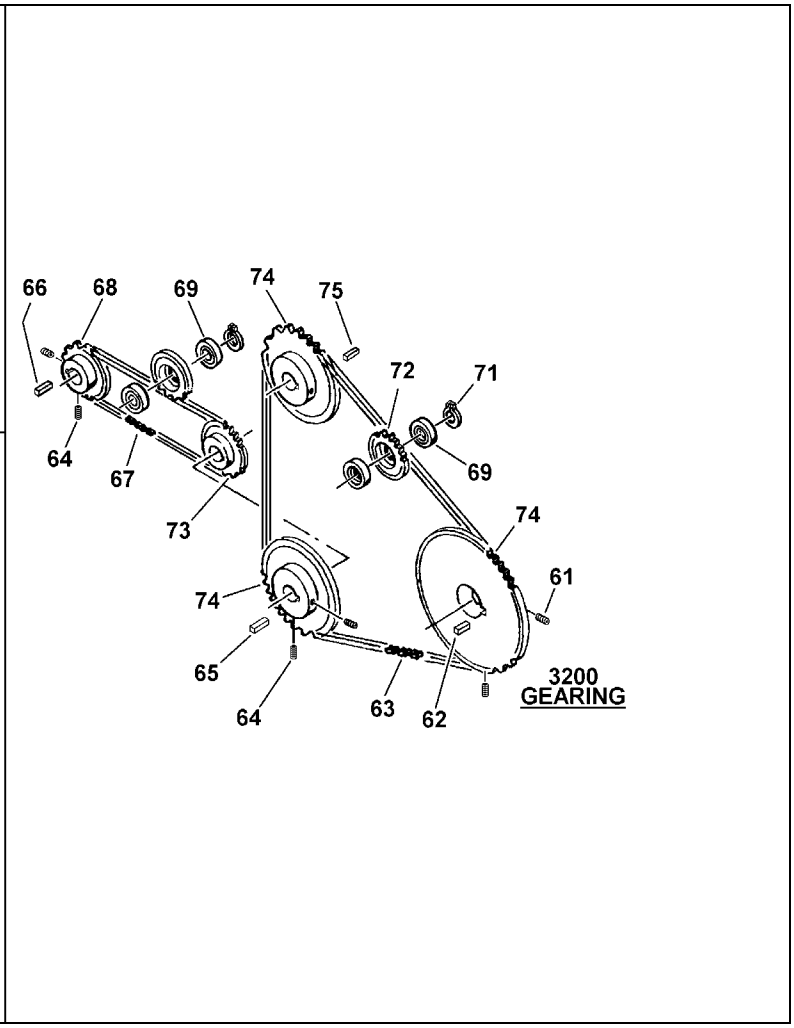
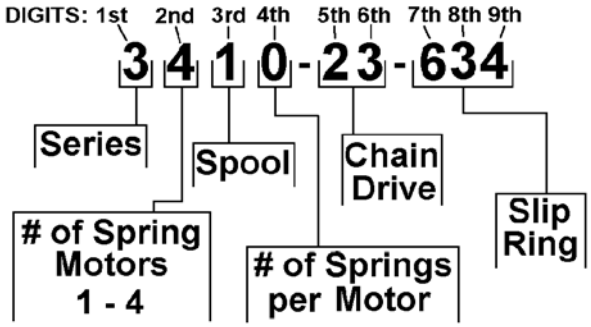




Explanation of Model No.



NOTE: For item #1 Replacement springs for inside spring motors. See SM0088-02 for complete spring motor parts list.

	Rotation	# of Springs Each Motor	Type Spring
B148200xx	Standard	xx= 21 =10 springs, 24=3, 25=4, 26=5 ,27=6 ,28=7 ,29=8, 30=9	4378200105
B148200xx	Reverse	xx= 31 =10 springs 34=3, 35=4, 36=5 ,37=6 ,38=7 ,39=8, 40=9	4378200205

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Reference Number	Part Number	Qty.	Description
1	B41820021	*	Spring Motor (4th Digit = 3) **Standard Rotation** (* = 2nd digit)
	B41820024	*	Spring Motor (=4)
	B41820025	*	Spring Motor (=5)
	B41820026	*	Spring Motor (=6)
	B41820027	*	Spring Motor (=7)
	B41820028	*	Spring Motor (=8)
	B41820029	*	Spring Motor (=9)
	B41820030	*	Spring Motor (=0)
	B41280034	*	Spring Motor (=3) **Reverse Rotation**
	B41280035	*	Spring Motor (=4) "
	B41280036	*	Spring Motor (=5) "
	B41280037	*	Spring Motor (=6) "
	B41280038	*	Spring Motor (=7) "
	B41280039	*	Spring Motor (=8) "
	B41280040	*	Spring Motor (=9) "
	B41280031	*	Spring Motor (=0) Reverse Rotation
2	00151P0105	8/Motor	Nut (1/2-13)
3	00101P0016	8/Motor	Lockwasher (1/2")
4	5721000000	1/Motor	Jack Shaft
5	00034P0019	4/Motor	Bolt (1/2-13 x 1 ¾)
6	00376P0168	1/Motor	Ball Bearing
7	00977P0006	1/Motor	Grease Nipple (1/8" NPT)
8	5721200000	1/Motor	Housing
9	00476P0007	1/Motor	Roller Bearing
10	5721400000	1/Motor	Collar Set
11	00053P0200	1/Motor	Set Screw (1/4-20 x ¼")
12	6032200001	1	Frame (2nd Digit = 1)
	6032200002	1	Frame (2)
	6032200003	1	Frame (3)
	6032200004	1	Frame (4)
13	4077300020	2	Key
14	60332000XX	2	Gear Group (5th & 6th Digits =XX)
15	01158P0005	A/R	Roller Chain #60
16	00053P0211	1	Set Screw (1/2-20 x ½") (at Key Location)
	00053P0221	1	Set Screw (1/2-20 x 1")
	00156P0020	1	Jam Nut (1/2-20)
17	4077300019	1	Key
18	00053P0503	2	Set Screw (3/8-16 x 5/8")
19	00376P0168	2	Ball Bearing
20	4906900000	1	Sprocket #60-17T
21	00582P0008	1	Retaining Ring
22	00682P0002	A/R	Gasket Tape
23	6025900000	1	Chain Cover
24	00101P0014	28	Lockwasher (5/16")
25	00031P0025	28	Bolt (5/16-18 x 7/8")
26	00101P0030	4	Lockwasher (1/4)
27	00030P0107	4	Bolt (1/4-20 x 3/8")
29	6026000001	1	Spool (3rd Digit = 1)
	6026000009	1	Spool (2)
	6026000002	1	Spool (3)
	6026000010	1	Spool (4)
	6026000003	1	Spool (5)
	6026000011	1	Spool (6)
	6026000012	1	Spool (7)
	6026000013	1	Spool (8)
	6026000014		Spool (9)

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30	00582P0024	1	Retaining Ring
31	4373400005	1	Junction Box 1" NPT (Cable OD .750-.850)
	4373400006	1	Junction Box 1 ¼" NPT (Cable OD .885-1.205)
	4373400007	1	Junction Box 1 ½" NPT (Cable OD 1.205-1.375)
	4373400008	1	Junction Box 2" NPT (Cable OD 1.375-1.875)
	4373400011	1	Junction Box 3" NPT (Cable OD 1.875-2.340)
32	00669P0068	A/R	Bushing Reducer
33	01151P0014	1	Connector (Cable OD 1.750-.885)
	01151P0016	1	Connector (Cable OD .885-1.065)
	01151P0017	1	Connector (Cable OD 1.605-1.205)
	01151P0025	1	Connector (Cable OD 1.205-1.375)
	01151P0023	1	Connector (Cable OD 1.375-1.625)
	01151P0026	1	Connector (Cable OD 1.625-1.825)
	01151P0027	1	Connector (Cable OD 1.825-2.188)
	01151P0029	1	Connector (Cable OD 2.188-2.340)
			Main shaft (3rd Digit = 2,4,6,7,8,9,)
34	6028700001	1	7,8,9 Digit = 302, 304, 402, 403
	6028700002	1	7,8,9 Digit = 306, 308, 310, 404
	6028700003	1	7,8,9 Digit = 312, 314, 316, 318
	6028700004	1	7,8,9 Digit = 320, 322, 324, 330
	6029300002	1	7,8,9 Digit = 632, 633, 634
	6028700011	1	7,8,9 Digit = 902, 903, 904, 906
			Main shaft (3rd Digit = 1,3,5,7,8,9)
	6028700006	1	7,8,9 Digit = 302, 304, 402, 403
	6028700007	1	7,8,9 Digit = 306, 308, 310, 404
	6028700008	1	7,8,9 Digit = 312, 314, 316, 318
	6028700009	1	7,8,9 Digit = 320, 322, 324, 330
	6029300001	1	7,8,9 Digit = 632, 633, 634
	6028700012	1	7,8,9 Digit = 902, 903, 904, 906
35	00053P0206	2	Set Screw (Spool) (1/2-13 x 5/8")
36	5592200000	1	Dust Seal Housing
37	4940400000	1	Felt Seal
38	4489500000	A/R	Gasket Strip
39	00379P0019	2	Main Bearing
40	00046P0003	8	Bolt (3/4-10 x 2 ½")
41	00151P0061	8	Nut (3/4-10)
42	00101P0061	8	Lockwasher (3/4")
43	4373400024	1	Assembly; Entrance Box 2" NPT (Cable OD .750-.885)
	4373400025	1	Assembly; Entrance Box 2" NPT (Cable OD .885-1.205)
	4373400026	1	Assembly; Entrance Box 2" NPT (Cable OD 1.205-1.375)
	4373400027	1	Assembly; Entrance Box 2" NPT (Cable OD 1.375-1.875)
	4373400028	1	Assembly; Entrance Box 2" NPT (Cable OD 1.875-2.340)
44	SRXXX	1	Slip Ring (7,8,9 Digit = XXX)
45	00682P0002	A/R	Gasket Tape
46	00101P0030	8	Washer; Lock (1/4")
47	00030P0112	8	Bolt ¼-20x7/8"
48	6070100001	1	Cover; Slip Ring (7,8,9 Digit = 302-324, 402-404, 632-634, 902-904)
	6070100002	1	Cover; Slip Ring (7,8,9 Digit = 330, 906)
49	00904P0002	A/R	Insulator (7,8,9 Digit = 303-324)
	00904P0001	A/R	Insulator (7,8,9 Digit = 330)
50	00903P0002	A/R	Wire Connector (7,8,9 Digit = 303-324)
	00903P0001	A/R	Wire Connector (7,8,9 Digit = 330)
51	6150400002	A/R	Wire Connector (7,8,9 Digit = 402-404)
52	00042P0040	A/R	Terminal (7,8,9 Digit = 632-634)
53	00032P0110	1/Motor	Bolt (3/8-16 x 1 ¼")
54	C01010222	2/Motor	Plain Washer (3/8")

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55	00101P0021	2/Motor	Lockwasher (3/8")
56	00151P0110	1/Motor	Nut (3/8-16)
57	00032P0105	1/Motor	Bolt (3/8-16 x 7/8)
58	6031600000	1/Motor	Bracket
59	01149P0025	A/R	Lead Wire (7,8,9 Digit = 302-316)
	01149P0033	A/R	Lead Wire (7,8,9 Digit = 318-324)
	01149P0035	A/R	Lead Wire (7,8,9 Digit = 330)
	01149P0008	A/R	Lead Wire (7,8,9 Digit = 402-404)
	R61450001	A/R	Lead Wire (7,8,9 Digit = 623, 902, 903)
	R61450002	A/R	Lead Wire (7,8,9 Digit = 634, 904)
	R61450003	A/R	Lead Wire (7,8,9 Digit = 906)
			For items below 2nd Digit = 1 = 3100, 2= 3200, 3=3300, 4=3400
60	60333000xx	2	Gears-Group (XX= 5th & 6th Digit) (For 3200 series only)
61	00053P0211	2	Set Screw (1/2-20 x ½" at Key Location) (3200, 3400, 3300)
62	4077300019	1	Key (3200, 3400, 3300)
63	01158P0005	A/R	Roller Chain #60 (3200, 3400, 3300)
64	00053P0503	6	Set Screw 3/8-16 x 5/8" (3200)
		8	Set Screw 3/8-16 x 5/8" (3300)
		12	Set Screw 3/8-16 x 5/8" (3400)
65	4077300020	1	Key (3200, 3300)
		2	Key (3400)
66	4077300018	1	Key (3200, 3300)
		2	Key (3400)
67	01158P0004	A/R	Roller Chain #50 (3200, 3400, 3300)
68	4452200016	1	Gear #50-16T (3200, 3300)
		2	Gear #50-16T (3400)
69	00376P0168	2	Ball Bearing (3200)
		4	Ball Bearing (3300)
		6	Ball Bearing (3400)
70	4907200000	1	Sprocket #50-16T (3200, 3300)
		2	Sprocket #50-16T (3400)
71	00582P0008	2	Retaining Ring (3200, 3300)
		3	Retaining Ring (3400)
72	4906900000	1	Sprocket #60-17T (3200, 3300, 3400)
73	4452200016	1	Sprocket #50-16T (5TH & 6TH Digit = 10-50) (3200)
	4452200216	1	Sprocket #50-16T (5TH & 6TH Digit = 55-60) (3200)
	4452200016	1	Sprocket #50-16T (5TH & 6TH Digit = 10-50) (3300)
	4452200216	1	Sprocket #50-16T (5TH & 6TH Digit = 55-60) (3300)
	4452200016	2	Sprocket #50-16T (5TH & 6TH Digit = 10-50) (3400)
	4452200216	2	Sprocket #50-16T (5TH & 6TH Digit = 55-60) (3400)
74	60334000xx	3	Gear Group xx=5th & 6th digits (3300)
75	4077300006	1	Key (3300)
76	60335000xx	3	Gear Group xx=5th & 6th digits (3400)

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