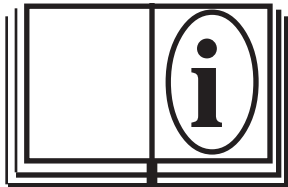


**POW-R-DRIVE II  
VALVE OPERATOR  
MODEL PRD II**



	<b>PIPE &amp; VALVE</b>
	MAINTENANCE MACHINES
Mod. <b>PRD II</b>	S/N: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
E.H. WACHS COMPANIES 100 Shepard St. Wheeling Il. 60090 ——— Patent Pending ———	

**Part Number:** 11-MAN-01

**Revision No.** + Eibenstock Motor

Revised:  
Oct. 20FH



# POW-R-DRIVE II

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# POW-R-DRIVE II

## SECTION I

## STANDARD EQUIPMENT

### INTRODUCTION:

The E. H. Wachs Company has redefined portable valve operating machines with the Pow-R-Drive II. This lightweight, versatile hand held valve operator provides power to easily operate valves from 6" to 60". It is perfect for hard to reach valves, valve exercising and testing.

The Pow-R-Drive II offers these advantages:

- Operate 3 times more valves per day.
- Be ready for emergency "shut offs".
- Eliminate operator fatigue and back injury.
- Offers maximum valve protection.
- Operate valves where access is limited.
- Easy to store, easy to use.
- Can be used easily by one operator.



From Left to Right: Hydraulic, Electric and Pneumatic Models

### PACKAGING:

The Pow-R-Drive II comes housed in a compact steel storage case.

The following items should be included in your Pow-R-Drive II case:

- POW-R-DRIVEII Valve Operator
- Extension Handle
- Operating Manual



# POW-R-DRIVE II

## SECTION II

## MACHINE SPECIFICATIONS

<b>Capacity:</b>	Operates all gate valves 6" to 60" (15.3 to 152.4 cm) and other equipment requiring mechanized turning.	<b>Revolution Counter:</b>	<ul style="list-style-type: none"><li>• Built in digital counter display.</li><li>• Push button reset counts in 1/10 revolution increments, forward and reverse automatically.</li></ul>
<b>Drive:</b>	<ul style="list-style-type: none"><li>• Two stage reduction.</li><li>• Planetary primary</li><li>• Bronze/Steel secondary (120:1 reduction)</li></ul>	<b>Torque Gauges:</b>	<ul style="list-style-type: none"><li>• Hydraulic: 0 to 800 ft./lbs. Glycerine filled.</li><li>• Pneumatic: 0-800 ft./lbs.</li></ul>
<b>Requirements:</b>	<ul style="list-style-type: none"><li>• Pneumatic: 60 cfm @ 90 psi.</li><li>• Hydraulic: 8 gpm @1800 psi.</li><li>• Electric: 110 V AC (60 Hz @ 3600 RPM)/220 V AC (50 Hz @ 3000 RPM). (Requires a 15 amp or 3500 watt generator.)</li></ul>	<b>Finish:</b>	Enamel paint, cadmium plated handles and accessories.
<b>Peak Torque:</b>	800 ft./lbs. (1084 N-m)	<b>Valve Key Size:</b>	1" square solid (2.54 cm)
<b>Motor Controls:</b>		<b>Socket:</b>	2" square. AWWA standard (5 cm).
<b>Electric:</b>	<ul style="list-style-type: none"><li>• 2 speed gearbox:<ul style="list-style-type: none"><li>• Low RPM/high torque</li><li>• High RPM/low torque</li></ul></li><li>• Single action on/off, forward/reverse, neutral after release.</li><li>• Overload reset button</li><li>• GFI (ground fault interrupter) with test and reset. ( 110 volt only )</li></ul>	<b>Dimensions:</b>	<ul style="list-style-type: none"><li>• Length: 39-3/4" (101 cm)</li><li>• Width: 7-3/4" (20 cm)</li><li>• Height: 7" (18 cm)</li></ul>
<b>Pneumatic:</b>	<ul style="list-style-type: none"><li>• Adjustable torque setting valve from 0 to 800 ft./lbs. with torque indicator gauge.</li><li>• Reversible pneumatic motor with springloaded on/off lever.</li><li>• Automatic stop after release.</li></ul>	<b>Storage Case:</b>	<ul style="list-style-type: none"><li>• Length: 40-1/2" (103 cm)</li><li>• Width: 10-1/4" (26 cm)</li><li>• Height: 8-1/2" (22 cm)</li></ul>
<b>Hydraulic:</b>	<ul style="list-style-type: none"><li>• Adjustable torque setting valve from 0 to 800 ft./lbs. with torque indicator gauge.</li><li>• Reversing valve, springloaded self centering automatic stop after release.</li></ul>	<b>Weight:</b>	<ul style="list-style-type: none"><li>• Pneumatic: 37 lbs. (17 kg.)</li><li>• Hydraulic: 36 lbs. (16 Kg.)</li><li>• Electric: 32 lbs. (15 Kg.)</li></ul>
		<b>Standard Accessories:</b>	<ul style="list-style-type: none"><li>• Torque arm extension for two operators</li></ul>
		<b>Optional Accessories:</b>	<ul style="list-style-type: none"><li>• Valve key (8 ft. (244 cm) or 4 ft. (122 cm) long)</li><li>• 2" square AWWA standard ductile iron socket</li><li>• stop collar</li><li>• 15/16 drive socket</li></ul>

# POW-R-DRIVE II

## SECTION III

## SAFETY INSTRUCTIONS

The E. H. Wachs Company takes great pride in manufacturing safe, quality products with user safety a priority.

The E.H. Wachs Company recommends that all users comply with the following safety rules and instructions when operating our equipment.



### Read the Following thoroughly before proceeding.

	<b>CAUTION</b> Keep clear of rotating parts during operation. Hands and arms should be kept a minimum of 2' away from moving parts except during starting and stopping.
--	--

1. **READ THE OPERATING MANUAL!!** Reading the setup and operating instructions prior to beginning the setup procedures can save valuable time and help prevent injury to operators or damage to machines.
2. **INSPECT MACHINE & ACCESSORIES!** Prior to machine setup physically inspect the machine and it's accessories. Look for loose bolts or nuts, lubricant leakage, excessive rust, etc. A properly maintained machine can greatly decrease the chances for injury.
3. **ALWAYS READ PLACARDS & LABELS!** All placards, labels and stickers must be clearly legible and in good condition. Replacement labels can be purchased from the manufacturer.
4. **KEEP CLEAR OF ROTATING PARTS!** Keep hands, arms and fingers clear of all rotating or moving parts. Always turn machine off before attempting any adjustments requiring contact with the machine or it's accessories.
5. **SECURE LOOSE CLOTHING & JEWELRY!** Loose fitting clothing, jewelry; long, unbound hair can get caught in the rotating parts on machines. By keeping these things secure or removing them you can greatly reduce the chance for injury.
6. **KEEP WORK AREA CLEAR!** Be sure to keep the work area free of clutter and nonessential materials. Only allow those personnel directly associated with the work being performed to have access to the area if possible.

For your safety and the safety of others, read and understand these safety recommendations and operating instructions before operating.

### ALWAYS WEAR PROTECTIVE EQUIPMENT:

	<b>WARNING</b> Impact resistant eye protection must be worn while operating or working near this tool.
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For additional information on eye and face protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

	<b>CAUTION</b> Personal hearing protection is recommended when operating or working near this tool.
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Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure and ANSI S12.6 Hearing Protectors.

	<b>CAUTION</b> Some individuals are susceptible to disorders of the hands and arms when exposed to tasks which involve highly repetitive motions and/or vibration. Disorders such as Carpal tunnel syndrome and tendonitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms.
--	---

- Use minimum hand grip force.
- Keep wrists straight.
- Avoid prolonged, continuous vibration exposure.
- Avoid repeated bending of wrists and hands.
- Keep hands and arms warm and dry.

	<b>CAUTION</b> Users of the electric powered Pow-R-Drive II Valve Operator should avoid standing water whenever possible. Do not expose electrical cord to water as this may result in electrical shock.
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Section IV

## Set Up & Operating Procedures

# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION



### Valve Maintenance Procedure

A valve that has not been operated for a number of years needs to be closed by using a series of up and down motions. Occasionally, crews attempting to close a difficult valve use a T-handle or a cheater bar, applying a great deal of pressure in one direction simply to force the valve closed. The correct way to exercise a valve is to begin with a steady amount of torque in the direction necessary to close the valve, moving through five to ten rotations. Then the direction should be reversed for two or three revolutions, followed by five or ten more turns in the closing direction. This procedure should be repeated until full closure is attained.

The reason for the cautious approach is that tuberculation and sediment have probably built up on the gates, stem, and slides. If this material is compacted while the valve is being closed, the torque required to close the valve continues to build as the material

is loaded. By using the procedure described, water in the system can flush the debris that has broken loose away from the gate and slide. The stem is exercised through the series of up and down motions. Once the valve has been fully closed, it should be opened a few turns so that the higher velocity water flowing under the gates can move the remainder of the sediment downstream.

After the valve is reopened, it should be turned in the closing direction one or two revolutions. Thus, the next time the valve is operated, it will not be necessary to start with a nut and stem jammed against the bonnet, and there will be no guesswork about which way to turn the nut because the valve will be free. Also, if it is inadvertently turned the wrong way, one or two turns can be made before a positive stop occurs, and by reversing direction, full operation of the valve can be effected.

Using the Pow-R-Drive II machines to operate valves is easier on the valve because a steady turning torque is applied rather than jerky motions. This prevents the stem breakage that is sometimes caused by turning the valve by hand. Also, more valves can be turned in less time. A further advantage is that information about each valve can be generated automatically by the revolution counter and torque gauges for inclusion on permanent records.

### HOW TO DETERMINE AN UNKNOWN VALVE ROTATION:

When the direction to turn the valve stem is not known, select a rotation direction and proceed with caution. If resistance is felt, immediately reverse the rotation. Continue this procedure, reversing direction when resistance is felt, until a free turning direction is achieved. Document the direction, open or closed position, and number of turns required.



# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION (cont.)

### I. SET UP PROCEDURE (all models):

1. Insert valve key and socket into valve.
2. Install stop collar at a comfortable operating height to support the weight of the Pow-R-Drive II.
3. Mount the Pow-R-Drive II on the valve key and rest on stop collar. Connect the power source.
4. Zero the counter when valve is ready to be turned by pressing the red reset button on the counter face (Figure 1). Always use the counter to determine the number of rotations the valve has turned.

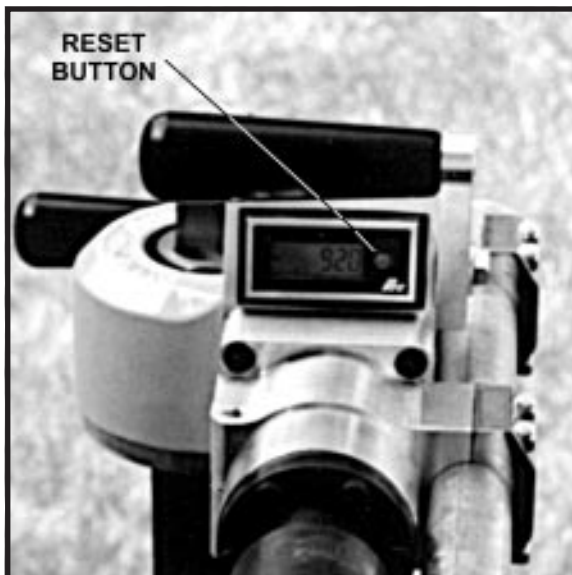


FIGURE 1

5. Determine direction of valve rotation and which side of Pow-R-Drive to operate. The operator should stand on the side of the machine which allows the torque to **PULL** the machine handle away from his body.



**CAUTION:** Always operate the Pow-R-Drive II at the lowest torque valve acceptable to turn the valve.

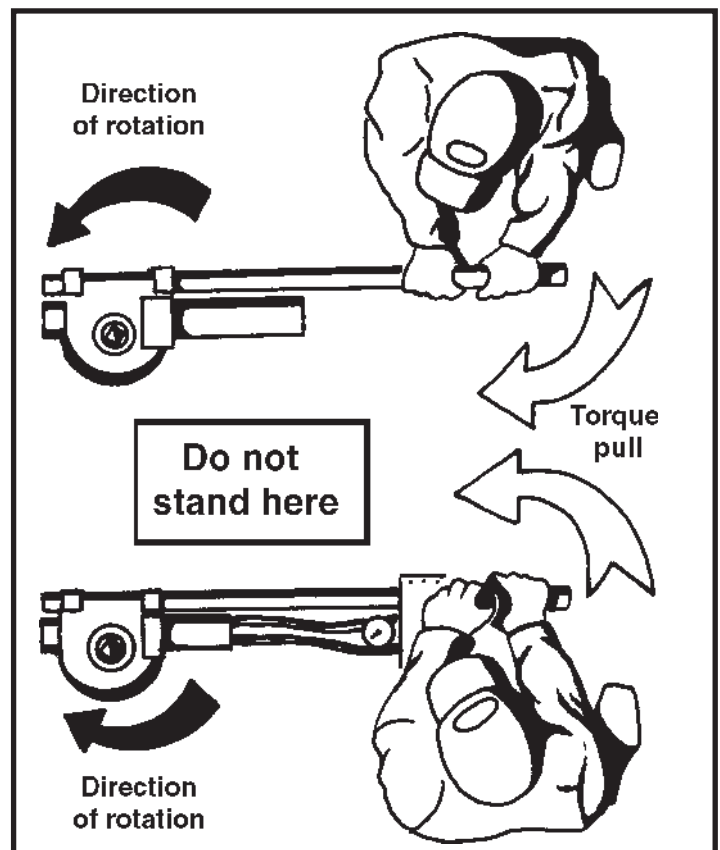
### II. OPERATOR POSITIONING



**CAUTION:** The Pow-R-Drive II is capable of producing up to 800 ft./lbs. of torque to turn valves. It is very important that proper procedure be exercised when using the valve operating machine.

Standing on the wrong side of the machine will allow the handle to **PUSH** against the operator and can knock him off balance or pin him against an obstacle if torque suddenly increases. When positioned properly, an increase in torque will **PULL** the handle and control out of the operator's hand and stop the machine (See illustrations below).

**IMPORTANT:** Always refer to the manual or the *valve direction decal* located on valve handle for correct operation positions.



*Operator should always change sides for opposite rotation.*

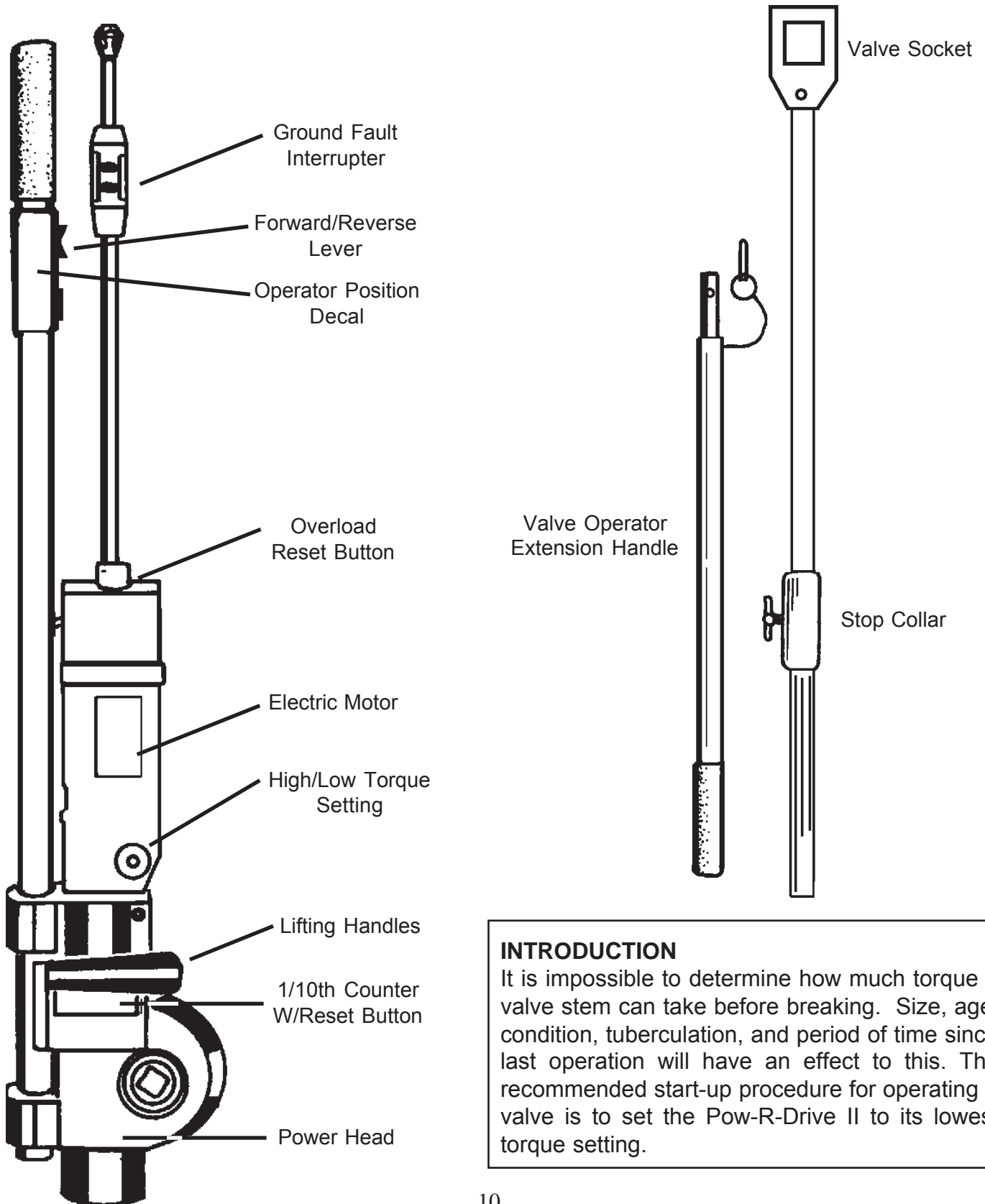
# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### CONTROLS AND COMPONENTS

#### ELECTRIC Pow-R-Drive II



#### INTRODUCTION

It is impossible to determine how much torque a valve stem can take before breaking. Size, age, condition, tuberculation, and period of time since last operation will have an effect to this. The recommended start-up procedure for operating a valve is to set the Pow-R-Drive II to its lowest torque setting.

# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### OPERATING PROCEDURE:

#### *Electric Pow-R-Drive II*



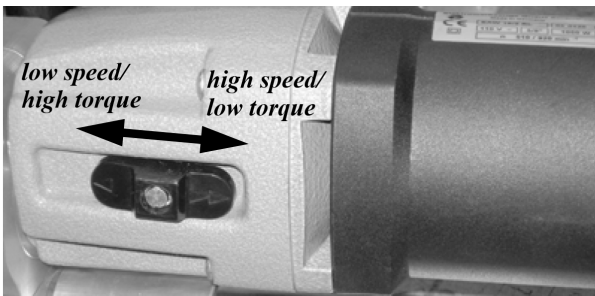
**CAUTION:** Before beginning turning sequence, know which direction to turn the valve to avoid breaking the valve stem.

1. After plugging in power cord, push reset button on GFI to power up unit (Figure 2).



FIGURE 2

2. Set speed control knob to high speed/low torque setting.



**NOTE:** A quick touch of the On/Off lever may be necessary to fully engage gears.

The maximum torque output in (high speed/low torque setting) is 500 ft./lbs. of torque with a maximum of 14 rpm free running speed. This setting should be sufficient for operating

most valves. (See Torque Chart) (Factory rated 175 ft./lbs. of continuous torque output in high speed/low torque setting.)



**NOTE:** If the motor overload circuit breaker pops while attempting to free a frozen valve, reset the circuit breaker by pressing the reset button and attempt to free the valve again before switching to the low speed/high torque setting.

3. If the valve does not move in either direction, switch speed control to low speed/high torque setting.

The maximum torque output in low speed/high torque setting is 800 ft./lbs. of torque with a maximum of 7 rpm free running speed. (Factory rated 375 ft./lbs. continuous torque output in low speed/high torque setting.)

Once the valve has started turning, return the speed control knob to the high speed/low torque setting. This procedure will assure you that the machine stops operating as soon as any type of obstruction is encountered or when the valve is seated.



**NOTE:** More torque will be required to seat, unseat or clear tuberculin from the valve.

### DURING OPERATION:

When operating a valve, a build up of torque can be felt by the operator. When this occurs, it is a sign of either build up of material in the valve gate slides or that the end of travel is approaching. The operator should change sides and reverse the valve direction for a few turns, doing this each time resistance is felt. This method of exercising cleans out tuberculin and other contaminant build up. The counter will keep track of how many turns you have put on the valve.

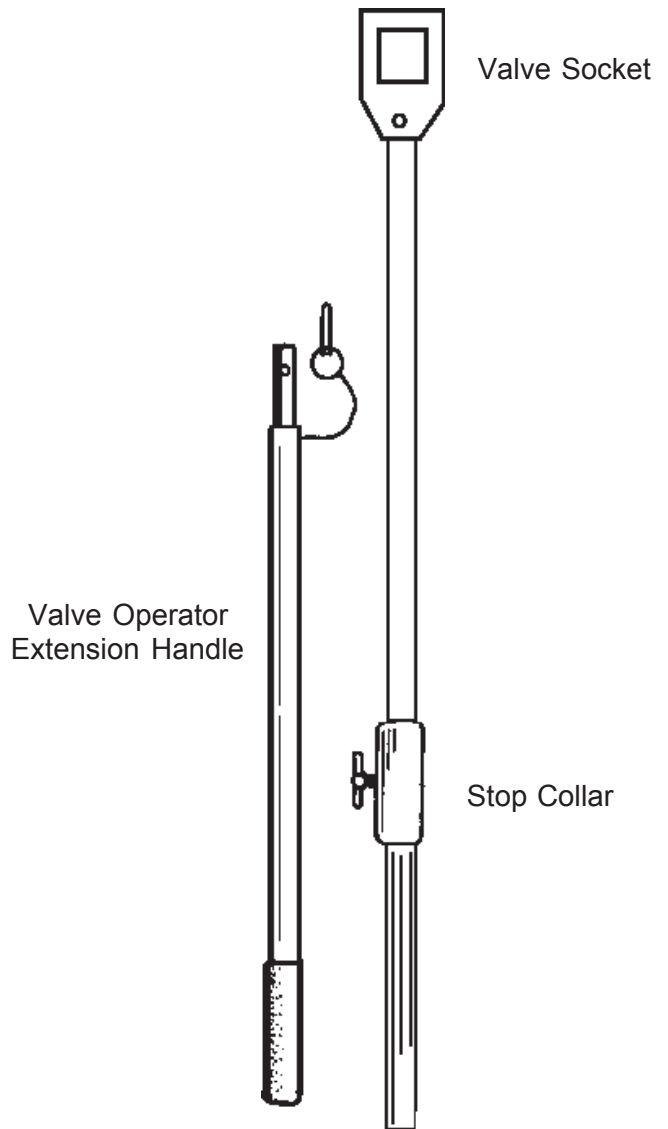
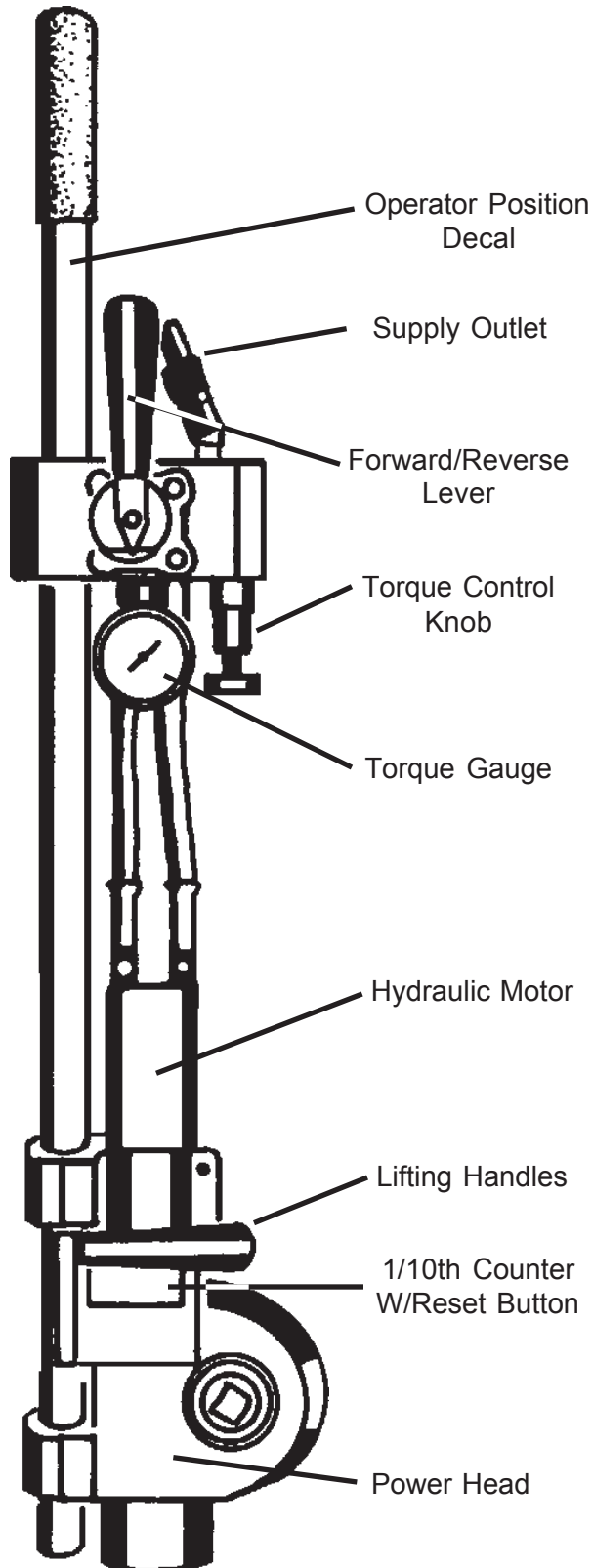
# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### CONTROLS AND COMPONENTS

#### HYDRAULIC Pow-R-Drive II



**CAUTION: DO NOT** connect or disconnect hoses to valve operator or power source while power source is operating.

#### INTRODUCTION

It is impossible to determine how much torque a valve stem can take before breaking. Size, age, condition, tuberculation, and period of time since last operation will have an effect to this. The recommended start-up procedure for operating a valve is to set the Pow-R-Drive II to its lowest torque setting.

# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### OPERATING PROCEDURE:

#### *Hydraulic Pow-R-Drive II*



**CAUTION:** Before beginning turning sequence, know which direction to turn the valve to avoid breaking the valve stem.

1. Rotate torque control knob counterclockwise to the lowest torque setting (Figure 3).



FIGURE 3

2. Engage the "power on" handle in either forward or reverse direction. If valve does not turn, release handle and engage in the opposite direction (Figure 3).



**NOTE:** When lever is depressed, torque indicator will read the torque value being applied to valve stem.

3. Continue this process, increasing the torque value 1/2 turn on the torque control until valve stem breaks free. This method ensures that only enough torque is supplied to turn the valve. Once the valve has started turning, reduce the torque setting to the lowest setting which will keep the machine operating. This procedure assures you that the machine will stop operating as soon as any type of obstruction is encountered or valve begins to seat.



**NOTE:** More torque will be required to seat, unseat or clear tuberculin from the valve.

### DURING OPERATION:

When operating a valve, a build up of torque can be felt by the operator. When this occurs, it is a sign of either build up of material in the valve gate slides or that the end of travel is approaching. The operator should change sides and reverse the valve direction for a few turns, doing this each time resistance is felt. This method of exercising cleans out tuberculin and other contaminant build up. The counter will keep track of how many turns you have put on the valve.

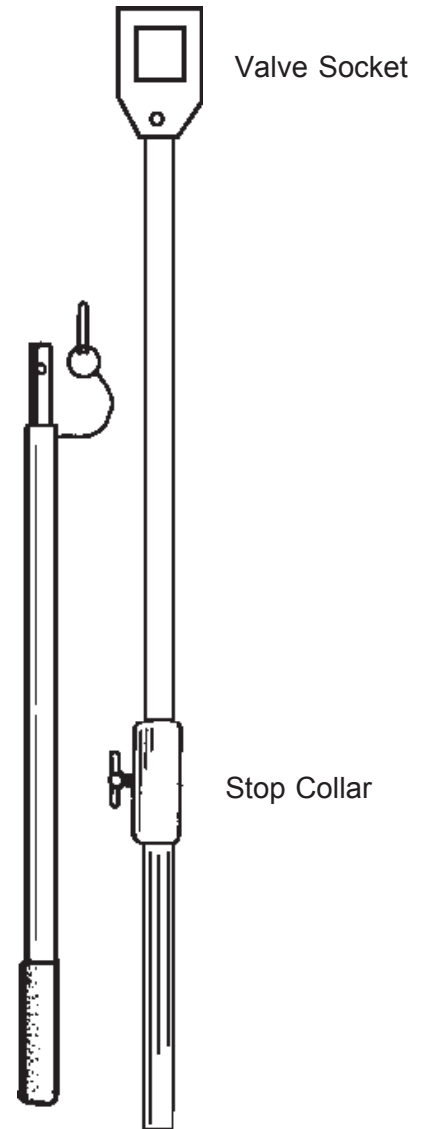
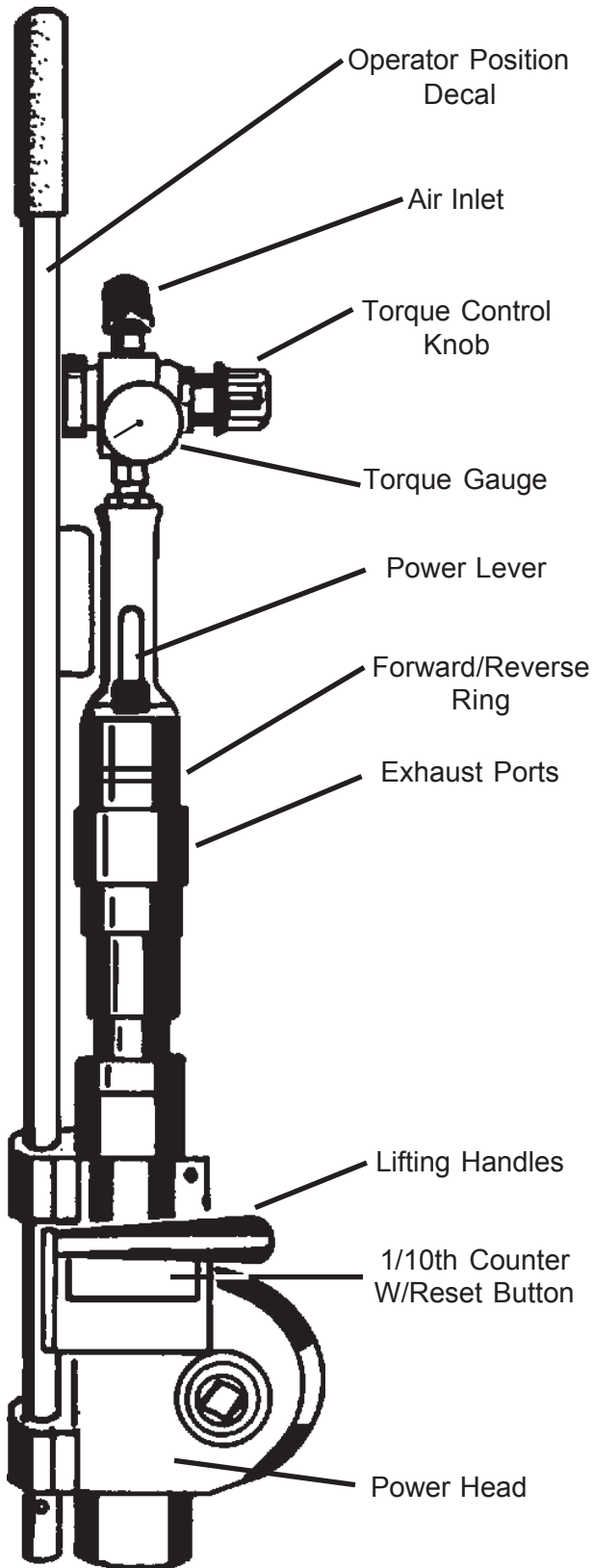
# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### CONTROLS AND COMPONENTS

#### PNEUMATIC Pow-R-Drive II



**CAUTION: DO NOT** connect or disconnect hoses to valve operator or power source while power source is operating.

#### INTRODUCTION

It is impossible to determine how much torque a valve stem can take before breaking. Size, age, condition, tuberculation, and period of time since last operation will have an effect to this. The recommended start-up procedure for operating a valve is to set the Pow-R-Drive II to its lowest torque setting.

# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### OPERATING PROCEDURE:

#### *Pneumatic Pow-R-Drive II*



**CAUTION:** Before beginning turning sequence, know which direction to turn the valve to avoid breaking the valve stem.

1. Rotate torque control knob counterclockwise to the lowest torque setting (Figure 4).



FIGURE 4

2. Press the power on lever in either forward or reverse direction. If valve does not turn, release lever and rotate motor direction ring on motor body and repeat procedure.



**NOTE:** When lever is depressed, torque indicator will read the torque value being applied to valve stem.

3. Continue this process, increasing the torque value 1/4 turn on the torque control until valve stem breaks free. This method ensures that only enough torque is supplied to turn the valve. Once the valve has started turning, reduce the torque setting to the lowest setting which will keep the machine operating. This

procedure assures you that the machine will stop operation as soon as any type of obstruction is encountered or valve begins to seat.

### NOTE:



1. More torque will be required to seat, unseat or clear tuberculin from the valve.
2. Maximum torque cut-off can be reset by free running Pow-R-Drive II with no load and adjusting torque control until torque indicator gauge reads desired torque cut-off.



**CAUTION:** PRD II Must be used with an inline filtration system to stop water and air borne contaminants. FAILURE TO COMPLY WILL DAMAGE MOTOR AND VOID WARRANTY.

### DURING OPERATION

When operating a valve, a build up of torque can be felt by the operator. When this occurs, it is a sign of either build up of material in the valve gate slides or that the end of travel is approaching. The operator should change sides and reverse the valve direction for a few turns, doing this each time resistance is felt. This method of exercising cleans out tuberculin and other contaminant build up. The counter will keep track of how many turns you have put on the valve.

### USE OF AIR LINE OIL:

An in-line oiling system should be utilized when operating the pneumatic Pow-R-Drive II to lubricate motor on a continuous basis.

When continuous load and high torque settings are required, the use of an antifreeze oil to lubricate the motor will reduce ice buildup and maintain motor performance. (Kilfrost Anti-Freeze Solution, Wachs Part No. 02-403-00)



# POW-R-DRIVE II

## SECTION IV

## SET-UP AND OPERATION

### TWO OPERATOR OPERATION:

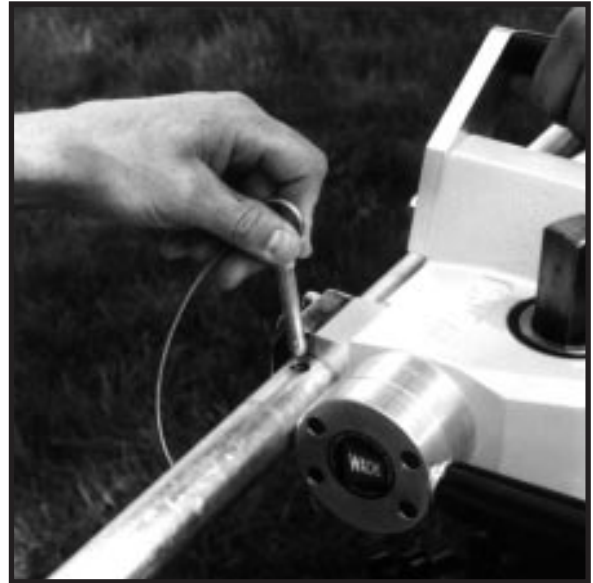


FIGURE 5

An extension handle should be used when the torque required to turn a valve is more than one operator can control easily.

The second operator should stand on the opposite side of the Pow-R-Drive II as the primary operator. (see photograph)

The torque should be pulling the machine handle away from both the secondary and primary operator.

1. An extension handle is provided with each Pow-R-Drive II. It is designed to be inserted into the end of the handle assembly near the powerhead (see Figure 5). A convenient quick release pin attached to the extension handle is inserted through the handle and extension to secure them.

2. When the extension handle is inserted, the machine can be used as a manual "T" wrench if desired.



SECTION V

**MISCELLANEOUS  
CHARTS AND GRAPHS**

# POW-R-DRIVE II

## SECTION V

## MISCELLANEOUS CHARTS AND GRAPHS

### Torque Performance Charts Electric 110 Volts Eibenstock

TORQUE FT/LBS	RPM *High Speed Low Torque Setting	AMPS	RPM Low Speed High Torque Setting	AMPS
100	10	8.6	6	4
* 200	8	8	6.5	6
300	7	11	4	7
375	6	12	4	8
500	5	15	4	10
600			3.6	12
700			3	12.5
800			3	13.5

\* Factory rated continuous load high speed/low torque

\*\* Factory rated continuous load low speed/high torque

### Electric 220 Volts

TORQUE FT/LBS	RPM *High Speed Low Torque Setting	AMPS	RPM Low Speed High Torque Setting	AMPS
100	10.2	3.1		
* 175	9.9	4.4	5.2	3.2
300	7.4	6.1	4.8	3.5
375	5	7.5	4.5	4.5
500	2	10	3.6	5.5
600			2.8	6.2
700			1.5	7.5
800			.5	10

\* Factory rated continuous load high speed/low torque

\*\* Factory rated continuous load low speed/high torque

# POW-R-DRIVE II

## SECTION V

## MISCELLANEOUS CHARTS AND GRAPHS

### Hydraulic

Based on 8 gpm @1800 psi

FT/LBS	RPM
100	24
200	22
300	20
400	17
* 500	10
600	8
700	6
800	1

\* Factory rated continuous load

### Pneumatic

Based on 90 psi @ 60 cfm

FT/LBS	RPM
100	13
200	11
300	7
400	5
* 500	4
600	3
700	2
800	1

\* Factory rated continuous load



SECTION VI

**MAINTENANCE**

# POW-R-DRIVE II

## SECTION VI

## MAINTENANCE

Check the gearbox monthly to ensure proper oil level.

1. Lay machine on the front side (counter down).
2. Remove filler plug and vent hole plug. (Figure 1)



Figure 1

3. Check oil level. Oil should be visible in holes.

4. If oil is required, pour oil in either hole until oil level is visible. Maximum gear box capacity is 5 oz (Figure 2).



Figure 2

**NOTE:**The E. H. Wachs Company recommends 123 Kent Gear Oil with Moly (90 wt.) Part No. 02-401-00.

5. Replace plugs.

SECTION VII

**PARTS LISTS  
&  
EXPLODED VIEW  
DRAWINGS**

# POW-R-DRIVE II

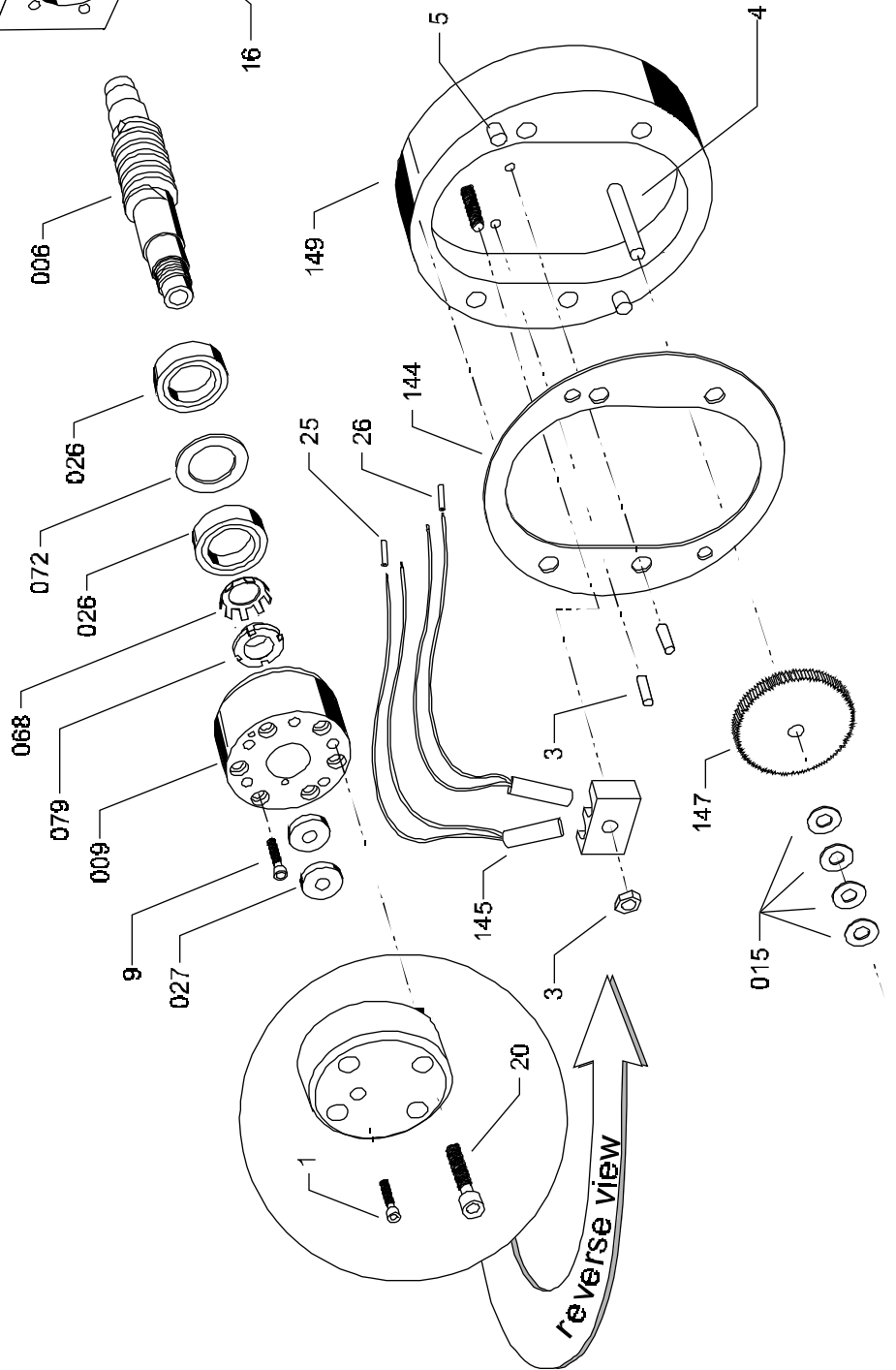
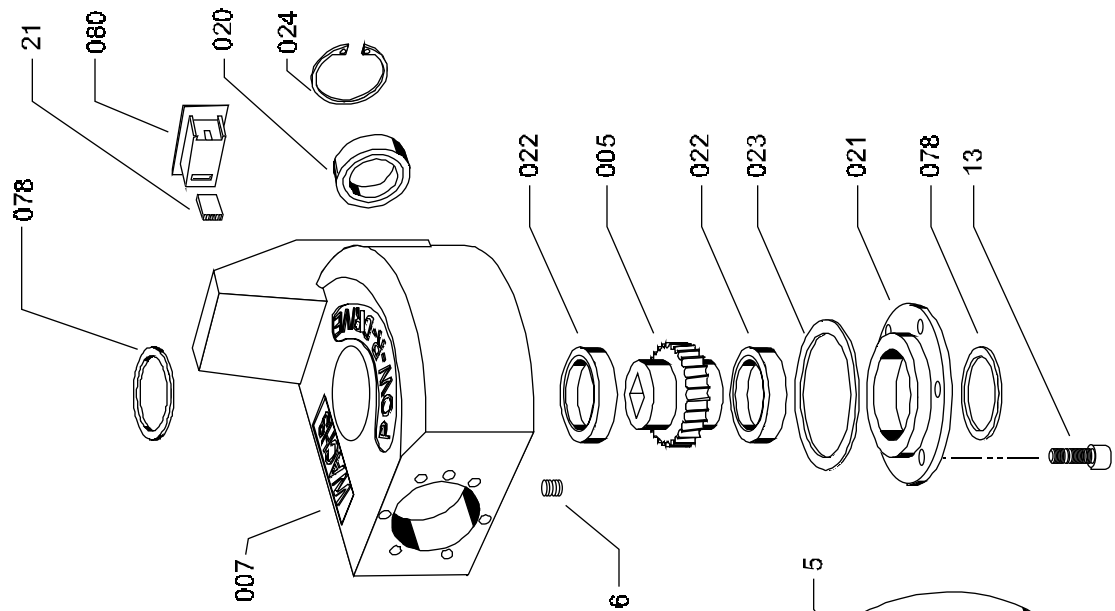
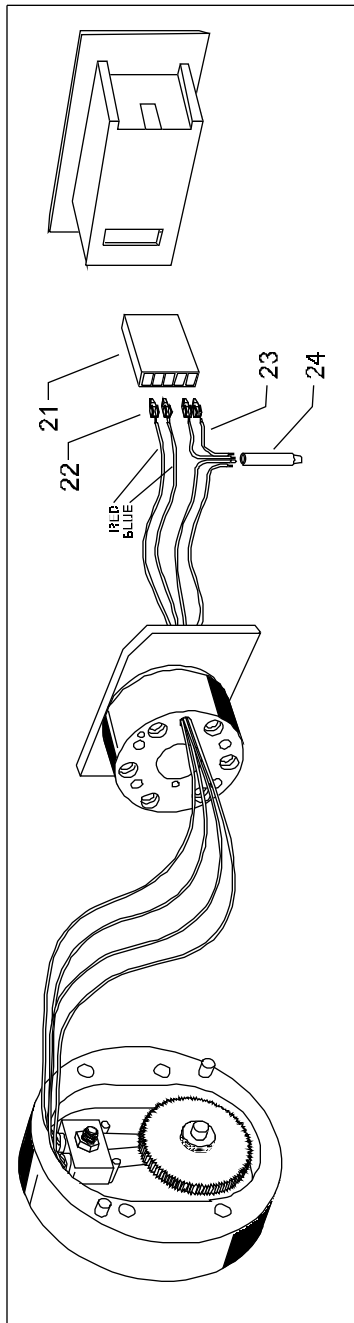
## Bill Of Material

### Pow-R-Drive II

#### Head Assembly-All Models

REF	PART NO	QTY	DESCRIPTION
005	11-005-00	1	GEAR, WORM
006	11-006-00	1	SHAFT, WORM
007	11-007-00	1	HOUSING
009	11-009-00	1	CAP, BEARING RETAINER
010	11-010-00	1	COVER, COUNTER SWITCH
015	11-015-00	1	WASHER, SPUR GEAR
020	11-020-00	1	BEARING, WORM SHAFT
021	11-021-00	1	CAP, WORM GEAR BEARING
022	11-022-00	2	BEARING
023	11-023-00	1	O-RING
024	11-024-00	1	SNAP RING
026	11-026-00	2	BEARING
027	11-027-00	2	SEAL
068	11-068-00	1	LOCK WASHER
072	11-072-00	1	SHIM, BEARING
078	05-014-00	2	SEAL
079	56-035-00	1	LOCK NUT
080	58-045-00	1	COUNTER, REVOLUTION
144	11-144-00	1	GASKET
145	11-145-00	2	SENSOR, POSITION
146	11-146-00	1	CLIP, SENSOR RETAIN
147	11-147-00	1	GEAR, COUNTER
149	11-149-00	1	COVER, COUNTER SENSOR
<b>FASTENERS</b>			
1	90-001-06	1	SHCS 6-32 X 5/8
2	90-005-02	1	NUT HEX #6-32
3	90-006-54	2	PIN, ROLL
4	90-016-56	1	PIN, ROLL 5/64 x 7/16
5	90-046-05	2	PIN, 3/16 X 1/2 DOWEL
9	90-050-12	6	SHCS 1/4-20 X 1-1/4
13	90-050-06	8	SHCS 1/4-20 X 5/8
16	90-128-01	2	PLUG, 1/8 NPT SOCKET
20	90-050-10	4	SHCS, 1/4-20 X 1
21	90-501-46	1	CONNECTOR, MOLEX
22	90-501-47	4	TERMINAL, MOLEX
23	90-901-13	6in	WIRE 24gua BLACK
24	90-501-36	1	CONNECTOR, CRIMP TOOTH
25	90-901-14	1	TUBING, SHRINK BLUE
26	90-901-15	1	TUBING, SHRINK RED





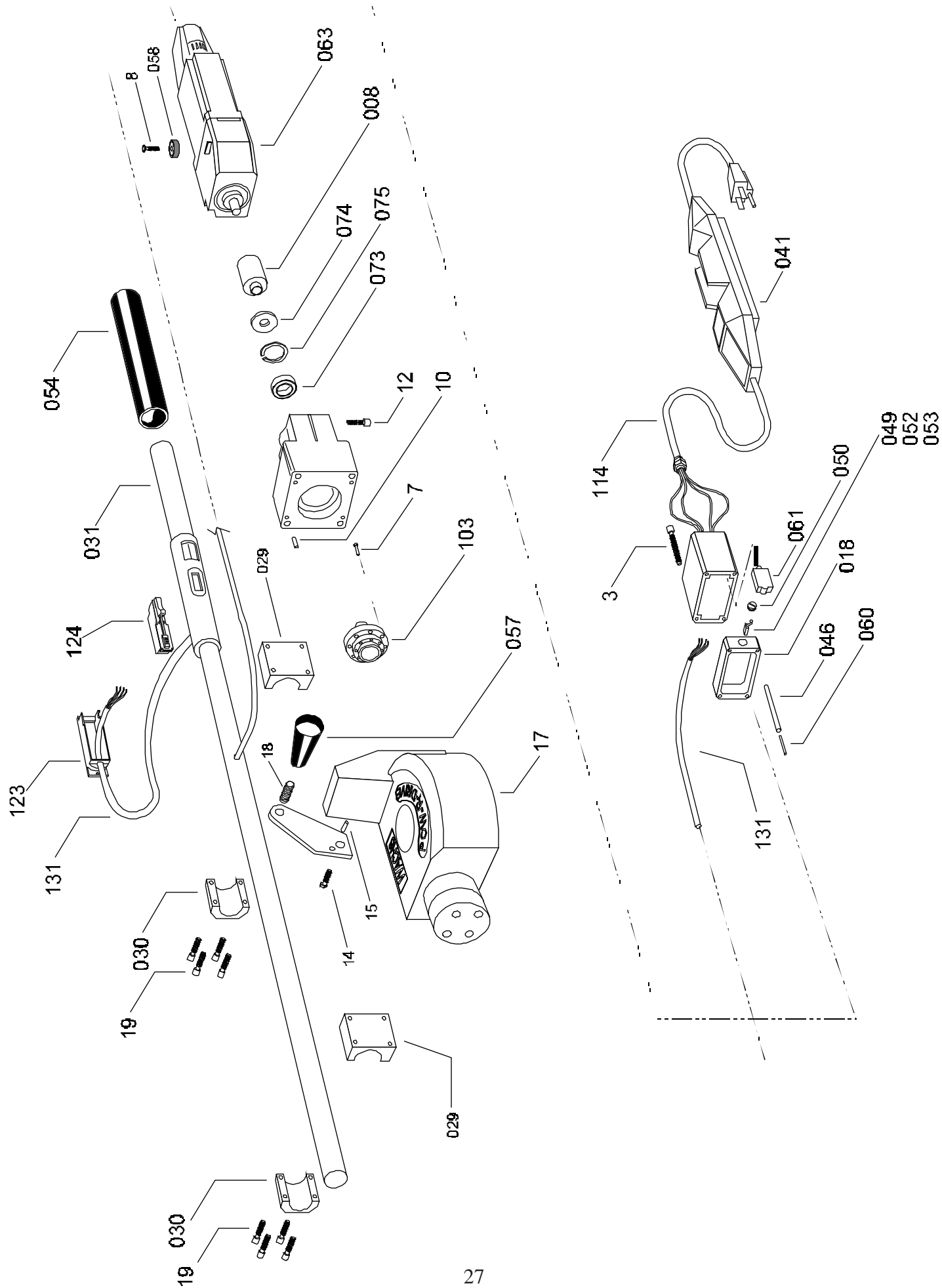
# POW-R-DRIVE II

## Bill Of Material Pow-R-Drive II

11-000-05-220v Electric Drive

REF	PART NO	QTY	DESCRIPTION
17	11-017-01	1	HOUSING, MOTOR
018	11-018-01	1	HOUSING, BRUSHES
019	11-019-00	1	BLOCK, MOTOR MOUNT
029	11-029-00	2	CLAMP, LOWER
030	11-030-00	2	CLAMP, UPPER
031	11-122-00	1	SWITCH HANDLE
041	11-041-00	1	GFI
041	11-041-01	1	GFI (EXPORT)
042	11-138-00	1	PLUG (UK)
N/S	11-044-00	1	EXTENSION, HANDLE ASSY (see page 34-35)
045	11-045-00	1	PIN, QUICK RELEASE
046	11-046-00	1	NUT, MOTOR SPACER
049	11-049-00	2	BRUSH
050	11-050-00	2	CAP BRUSH
052	11-052-00	1	END BRUSH WIRE-LEFT
053	11-053-00	1	END BRUSH WIRE-RIGHT
054	11-054-00	1	GRIP, RUBBER
057	11-118-00	1	HANDLE, TAPERED
058	11-058-00	1	KNOB, HIGH/LOW
060	11-060-00	4	STUD, MOTOR
061	11-061-00	1	BUTTON, RESET
N/S	11-062-00	1	LABEL, SPEED CONTROL
064	11-064-00	1	PLATE, HANDLE EXT.
N/S	11-069-00	1	LABEL, GFI RESET
N/S	11-070-00	1	LABEL, OPERATOR POS.
073	11-073-00	1	BEARING, DRIVE ADAPT
074	11-074-00	1	SEAL, DRIVE ADAPTOR
075	11-075-00	1	RING, SNAP
076	11-076-00	1	LOCK WASHER, 1/2"
N/S	11-101-00	6	END SCREW TERMINAL
N/S	11-102-00	3	END SCREW TERMINAL
103	11-103-00	1	GEAR, PLANETARY
106	11-106-00	2	HOLDER BRUSH, MODIFIED
N/S	11-112-01	1	220 V. MOTOR
114	11-114-00	1	CORD, CONNECTOR
008	11-115-00	1	WELDMENT, MOTOR
123	11-123-00	1	HOUSING, SWITCH
124	11-124-00	1	SWITCH, MODIFIED
131	11-131-00	20"	WIRE, 6 COND. 16 GA.
132	11-132-00	6	TERMINAL, END

REF	PART NO	QTY	DESCRIPTION
<b>FASTENERS</b>			
1	90-040-62	4	SHCS, 10-32 X 1-1/4
3	90-040-27	4	SHCS, 10-24 X 2-3/4
N/S	90-026-05	2	PIN, DOWEL 1/8 X 1/2
7	90-020-10	8	SHCS, 8-32 X 1
8	90-043-05	1	FHCS, 10-24 X 1/2
9			CAP, CONNECTOR
10	90-056-05	4	PIN, DOWEL 1/4 X 1/2
11	90-060-15	4	SHCS, 5/16-18 X 1-1/2
12	90-020-17	1	SHCS, 3/8-16 X 1-3/4
14	90-071-10	1	HHCS, 3/8-18 X 1
15	90-056-06	2	PIN, DOWEL 1/4 X 5/8
18	90-194-20	1	SSS (SS) 1/2-13 X 2
19	90-060-20	8	SHCS, 5/16-18 X 2
N/S	90-006-03	2	ROLL PIN, 1/16 X 3/8
N/S	90-024-02	1	SSS, 8/32 X 1/4
24	90-042-06	2	BHCS, 10-32 x 3/8"
25	90-501-42	4	TERMINAL, 16 GA. BULLET
26	90-501-44	1	TERMINAL, 1/4 FEMALE
29	11-133-00	1	GROMMET, RUBBER
30	11-134-00	1	PLUG, RUBBER #4
31	11-135-00	1	PLUG, RUBBER #6
			<b>NOTE:</b> PLANETARY GEAR #11-103-00 IS FOUND ON ELEC- TRIC AND HYDRAULIC POWER DRIVES ONLY.



# POW-R-DRIVE II

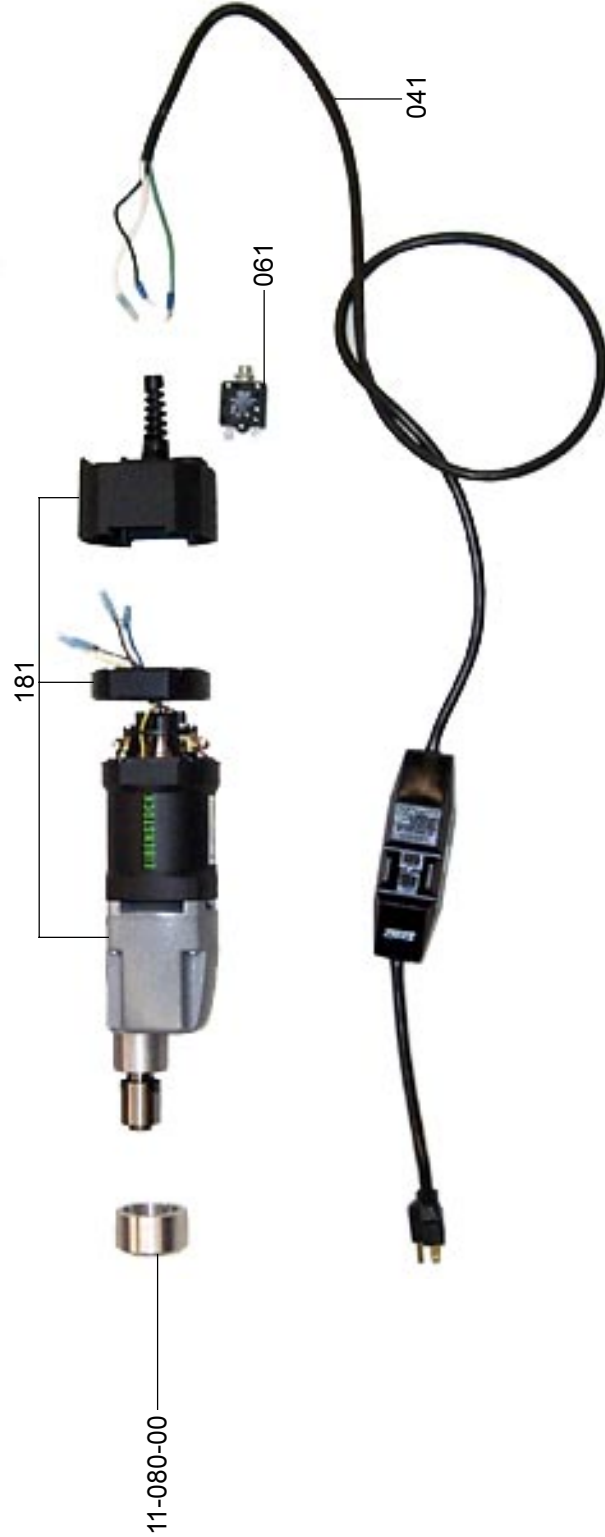
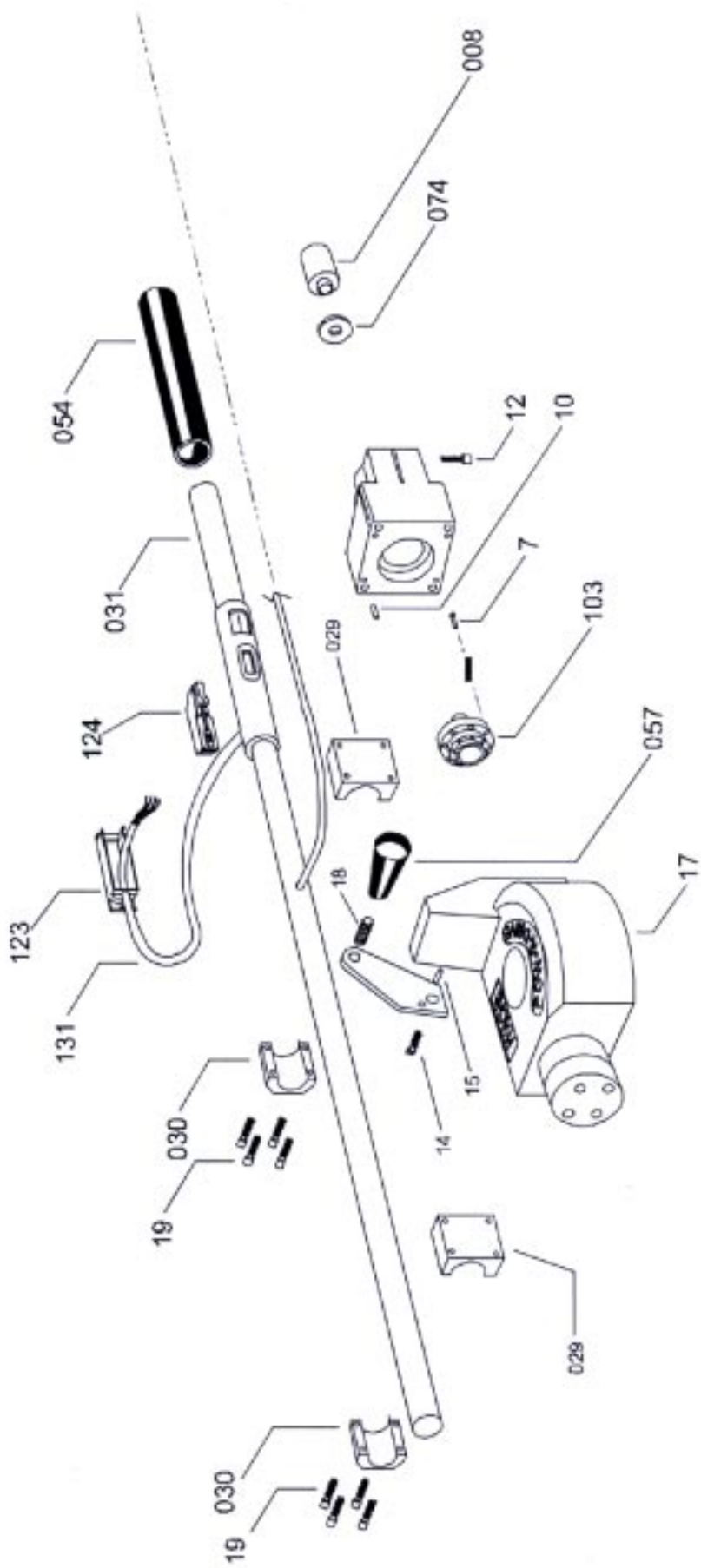
## Bill Of Material

### Pow-R-Drive II

11-000-02-110v Electric Drive

REF	PART NO.	QTY	DESCRIPTION
17	11-017-01	1	HOUSING, MOTOR
019	11-019-00	1	BLOCK, MOTOR MOUNT
029	11-029-00	2	CLAMP, LOWER
030	11-030-00	2	CLAMP, UPPER
031	11-122-00	1	SWITCH HANDLE
041	11-041-00	1	GFI CORD
042	11-138-00	1	PLUG (UK)
N/S	11-044-00	1	EXTENSION, HANDLE ASSY (see page 34-35)
045	11-045-00	1	PIN, QUICK RELEASE
053	11-053-00	1	END BRUSH WIRE-RIGHT
054	11-054-00	1	GRIP, RUBBER
057	11-118-00	1	HANDLE, TAPERED
058	11-058-00	1	KNOB, HIGH/LOW
061	11-061-00	1	BUTTON, RESET
N/S	11-062-00	1	LABEL, SPEED CONTROL
064	11-064-00	1	PLATE, HANDLE EXT.
N/S	11-069-00	1	LABEL, GFI RESET
N/S	11-070-00	1	LABEL, OPERATOR POS.
074	11-074-00	1	SEAL, DRIVE ADAPTOR
076	11-076-00	1	LOCK WASHER, 1/2"
080	11-080-00	1	BUSHING
181	11-181-00	1	EIBENSTOCK MOTOR 110V
N/S	11-101-00	6	END SCREW TERMINAL
N/S	11-102-00	3	END SCREW TERMINAL
103	11-103-00	1	GEAR, PLANETARY
106	11-106-00	2	HOLDER BRUSH, MODIFIED
008	11-115-00	1	WELDMENT, MOTOR
123	11-123-00	1	HOUSING, SWITCH
124	11-124-00	1	SWITCH, MODIFIED
N/S	11-131-00	20"	WIRE, 6 COND. 16 GA.
132	11-132-00	6	TERMINAL, END

REF	PART NO.	QTY	DESCRIPTION
<b>FASTENERS</b>			
1	90-040-62	4	SHCS, 10-32 X 1-1/4
N/S	90-026-05	2	PIN, DOWEL 1/8 X 1/2
7	90-020-10	8	SHCS, 8-32 X 1
9			CAP, CONNECTOR
10	90-056-05	4	PIN, DOWEL 1/4 X 1/2
11	90-060-15	4	SHCS, 5/16-18 X 1-1/2
12	90-020-17	1	SHCS, 3/8-16 X 1-3/4
14	90-071-10	1	HHCS, 3/8-18 X 1
15	90-056-06	2	PIN, DOWEL 1/4 X 5/8
18	90-194-20	1	SSS (SS) 1/2-13 X 2
19	90-060-20	8	SHCS, 5/16-18 X 2
N/S	90-006-03	2	ROLL PIN, 1/16 X 3/8
N/S	90-024-02	1	SSS, 8/32 X 1/4
24	90-042-06	2	BHCS, 10-32 x 3/8"
25	90-501-42	4	TERMINAL, 16 GA. BULLET
26	90-501-44	1	TERMINAL, 1/4 FEMALE
29	11-133-00	1	GROMMET, RUBBER
30	11-134-00	1	PLUG, RUBBER #4
31	11-135-00	1	PLUG, RUBBER #6
<p><b>NOTE:</b> PLANETARY GEAR #11-103-00 IS FOUND ON ELECTRIC AND HYDRAULIC POWER DRIVES ONLY.</p>			



# POW-R-DRIVE II

## Bill Of Material

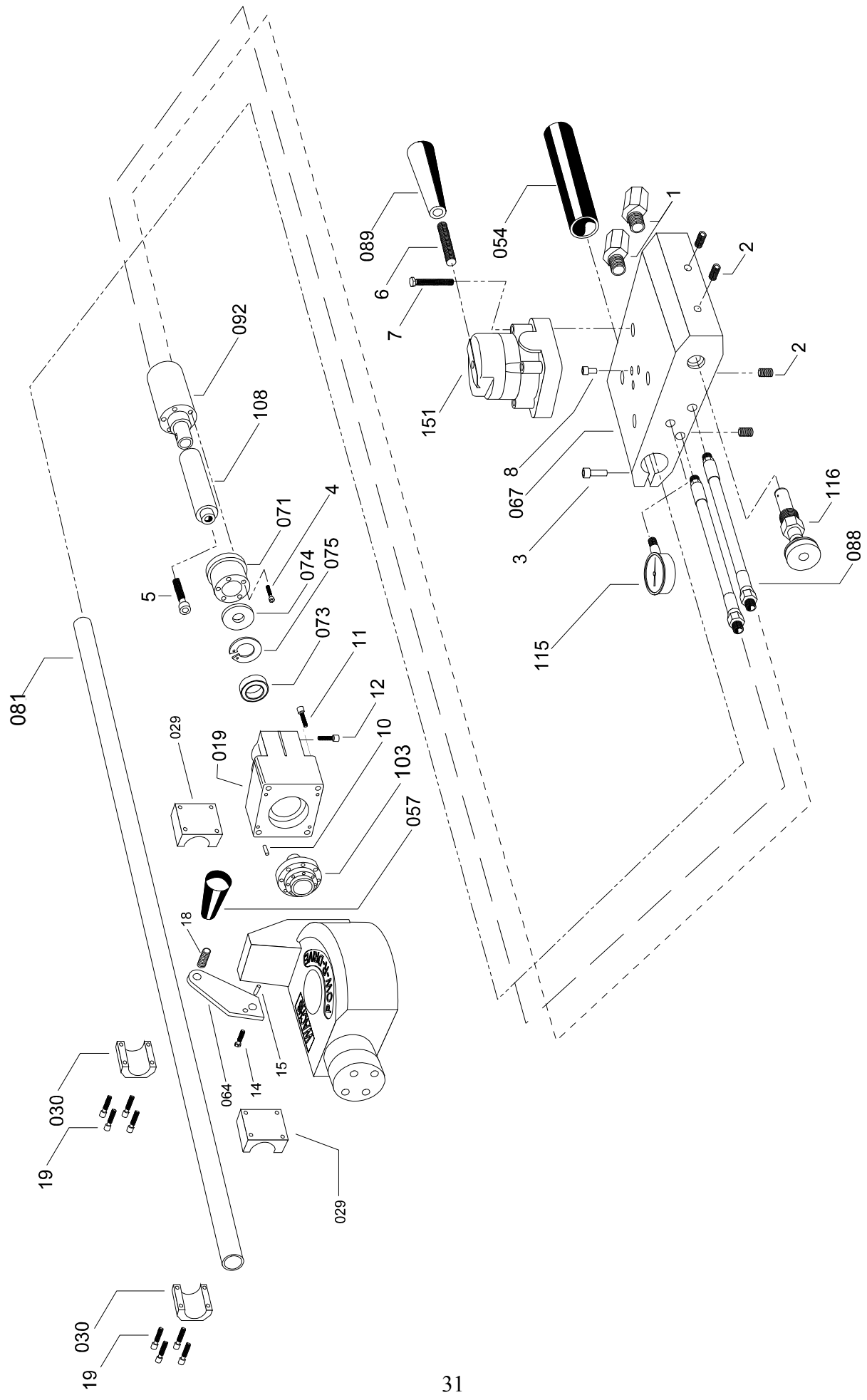
### Pow-R-Drive II

11-000-04

Hydraulic Drive

REF	PART NO	QTY	DESCRIPTION
019	11-019-00	1	BLOCK, MOTOR MOUNT
029	11-029-00	1	CLAMP, LOWER
030	11-030-00	1	CLAMP, UPPER
042	11-042-00	1	HANDLE, PIPE
043	11-043-00	1	KEY, EXTENSION
045	11-045-00	1	PIN, QUICK RELEASE
054	11-054-00	1	GRIP, RUBBER
057	11-118-00	1	HANDLE, TAPERED
064	11-064-00	1	PLATE, HANDLE EXT.
067	11-141-00	1	MANIFOLD
N/S	11-070-00	1	LABEL, OPERATOR POS.
071	11-071-00	1	ADAPTOR, HYD MOTOR
073	11-073-00	1	BEARING, DRIVE ADAPT.
074	11-074-00	1	SEAL, DRIVE ADAPTOR
075	11-075-00	1	RING, SNAP
076	11-076-00	1	LOCK WASHER, 1/2"
088	11-088-00	2	HOSE, HYDRAULIC
089	11-089-00	1	HANDLE, TAPERED
081	11-081-00	1	HANDLE
092	11-092-00	1	MOTOR, HYDRAULIC
N/S	11-099-00	1	CASE, STORAGE
103	11-103-00	1	GEAR, PLANETARY
108	11-108-00	1	COUPLER, HYD MOTOR
N/S	11-111-00	1	TAG, SERIAL
115	11-110-00	1	GAUGE, TORQUE
	11-142-00	1	REGULATOR

REF	PART NO	QTY	DESCRIPTION
116	05-116-00	1	VALVE, RELIEF
151	05-151-00	1	VALVE, REVERSING
121	62-121-00	1	LANYARD
<b>FASTENERS</b>			
1	90-178-01	2	ST EL, 3/8 NPT-45
2	90-028-01	6	PLUG, 1/8 NPT SOCKET
3	90-128-01	3	SHCS, 5/16-18 X 1
4	90-050-62	5	SHCS, 1/4-28 X 1-1/4
5	90-050-57	1	SHCS, 1/4-28 X 3/4
6	90-075-65	1	SSS, 3/8-16 X 1-1/2
7*		4	HHCS (INCLUDED W/#05-151-00)
8*		3	BRASS FERROLS (INCLUDED W/#05-151-00)
7	90-020-10	8	SHCS, 8-32 X 1
10	90-056-05	4	PIN, DOWEL 1/4 X 1/2
11	90-060-15	4	SHCS, 5/16-18 X 1-1/2
12	90-070-17	1	SHCS, 3/8-16 X 1-3/4
14	90-071-10	1	HHCS, 3/8-16 X 1
15	90-056-06	1	PIN, DOWEL 1/4 X 5/8
18	90-194-20		SSS (SS), 1/2-13 X 2
19	90-060-20	8	SHCS, 5/16-18 X 2
N/S	90-024-02	1	SSS, 8-32 X 1/4
<b>NOTE:</b> PLANETARY GEAR #11-103-00 FOUND ON ELECTRIC & HYDRAULIC MODELS ONLY.			



# POW-R-DRIVE II

## Bill Of Material

### Pow-R-Drive II

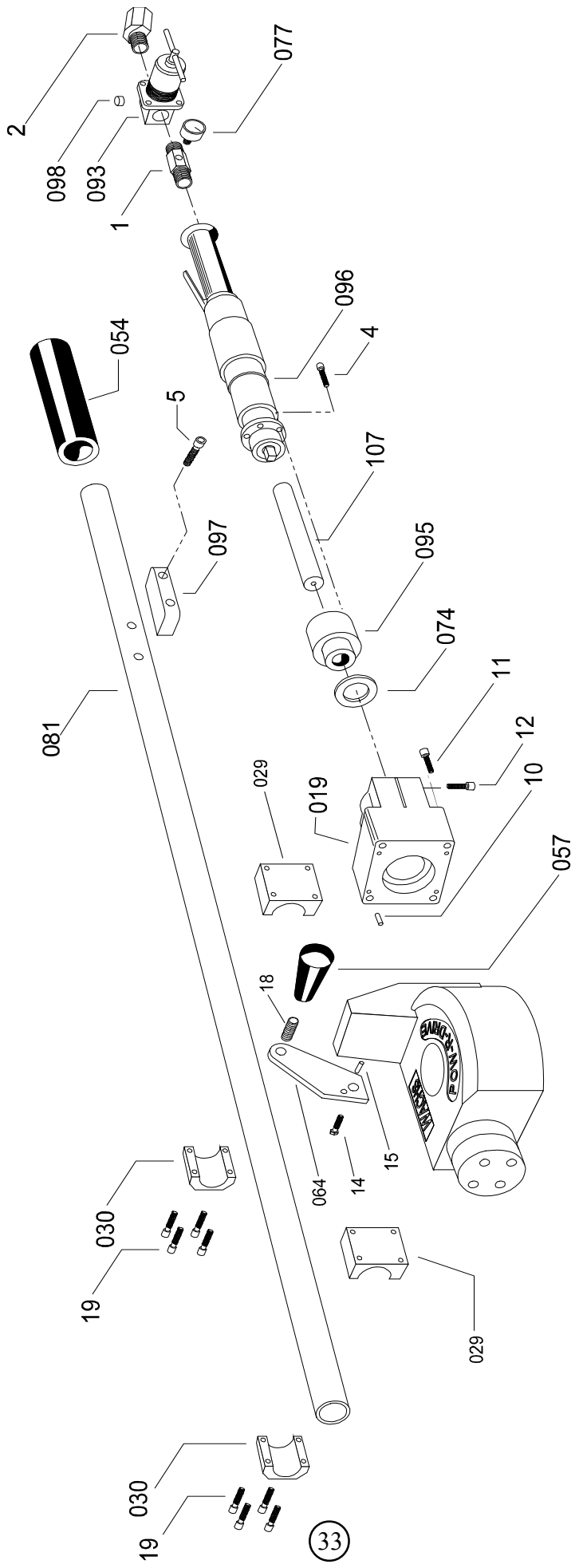
11-000-03

Pneumatic Drive

REF	PARTNO	QTY	DESCRIPTION
019	11-019-00	1	MOUNT, MOTOR
029	11-029-00	2	CLAMP, LOWER
030	11-030-00	2	CLAMP, UPPER
N/S	11-042-00	1	HANDLE, PIPE
N/S	11-043-00	1	KEY EXTENSION
N/S	11-044-00	1	HANDLE, EXTENSION ASSY
045	11-045-00	1	PIN, QUICK RELEASE
054	11-054-00	1	GRIP, RUBBER
057	11-118-00	1	HANDLE, TAPERED
064	11-064-00	1	PLATE, HANDLE EXT.
N/S	11-070-00	1	LABEL, OPERATOR POS.
074	11-074-00	1	SEAL, DRIVE ADAPTOR
076	11-076-00	1	LOCK WASHER, 1/2"
077	11-093-02	1	GAUGE, 1.5"x1/8" PIPE
081	11-081-00	1	BAR HANDLE, AIR
093	11-093-01	1	REGULATOR
N/S	11-094-00	1	LABEL, GAUGE OVERLAY
095	11-095-00	1	ADAPTOR, MOTOR
096	11-096-00	1	MOTOR, PNEUMATIC
097	11-097-00	1	GUARD, FINGER
098	11-098-00	2	PLUG, (INCLUDED WITH REGULATOR)
N/S	11-099-00	1	CASE, STORAGE
107	11-107-00	1	COUPLER
N/S	11-111-00	1	TAG, SERIAL
N/S	62-121-00	1	LANYARD
122	11-136-00	1	KNOB, REGULATOR
123	11-808-00	1	KNOB

REF	PARTNO	QTY	DESCRIPTION
<b>FASTENERS</b>			
1	11-137-00	1	NIPPLE
2	90-098-62	1	ST EL, 1/2-45°
4	90-060-10	6	SHCS, 5/16-18 X 1
5	90-050-07	2	SHCS, 1/4-20 X 3/4
10	90-056-05	4	PIN, DOWEL 1/4 X 1/2
11	90-060-15	4	SHCS, 5/16-18 X 1-1/2
12	90-070-17	1	SHCS, 3/8-16 X 1-3/4
14	90-071-10	1	HHCS, 3/8-16 X 1
15	90-056-06	2	PIN, DOWEL 1/4 X 5/8
17	90-094-45	1	SSS NYLOK, 1/2-13 X 1/2
18	90-194-20	1	SSS (SS), 1/2-13 X 2
19	90-060-20	8	SHCS, 5/16-18 X 2
20	90-024-02	1	SSS, 8-32 X 1/4 (NOT SHOWN)
21	90-054-01	1	1/4-20 x 3/16 SSS





# POW-R-DRIVE II

## Bill Of Material

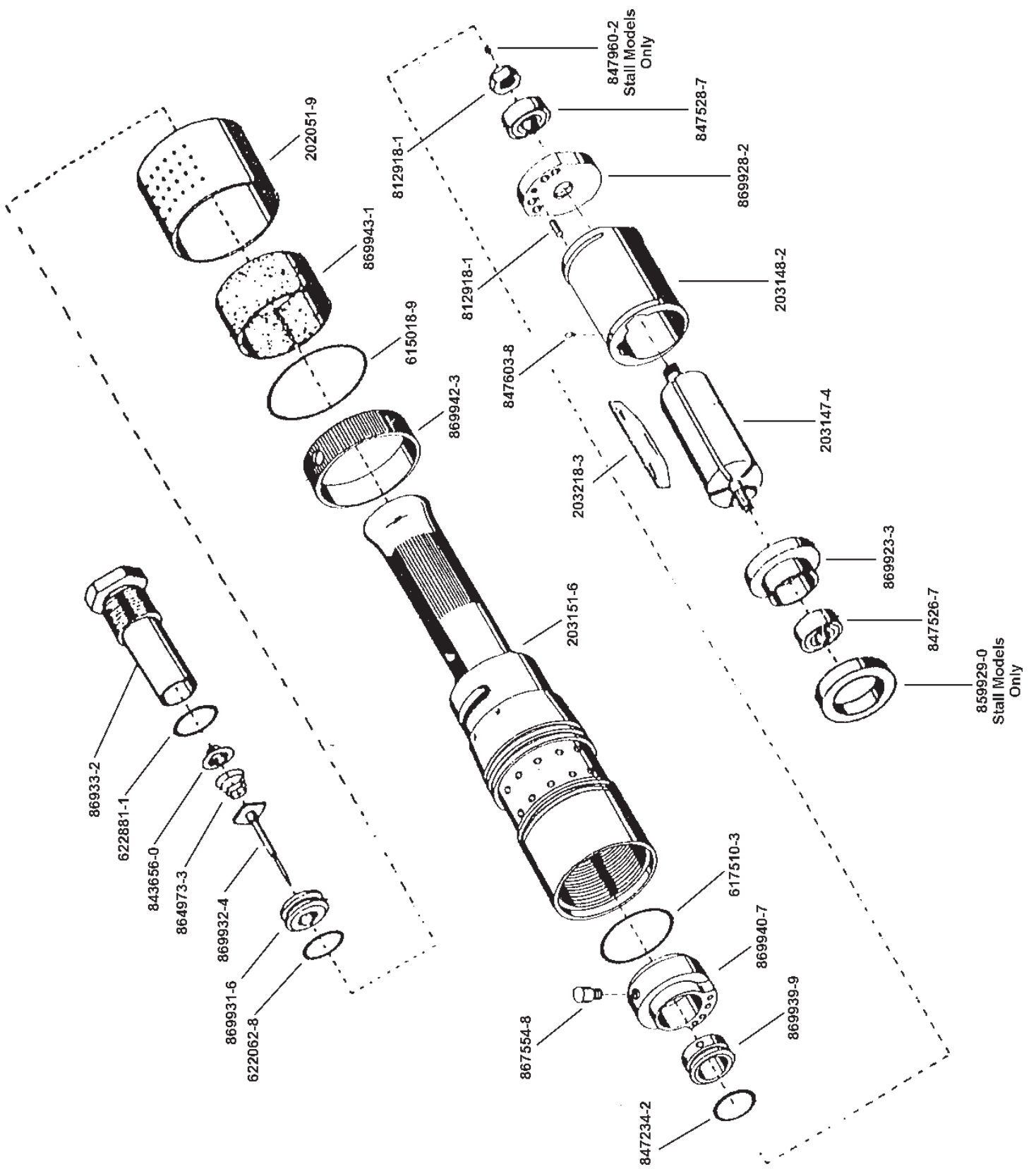
### Pow-R-Drive II

#### Air Motor Schematic

Part Number 11-096-00

PART NO	QTY	DESCRIPTION
202050-1	1	DEFLECTOR SPACER
202051-9	1	EXHAUST DEFLECTOR
202481-8	1	THROTTLE VALVE PIN
203147-4	1	ROTOR
203218-3	5	ROTOR BLADES
615018-1	4	O-RING
622062-6	1	O-RING
622881-1	1	O-RING
843656-0	1	AIR INLET SCREEN
847950-2	1	SET SCREW
847526-7	2	ROTOR BEARING
864195-3	1	THROTTLE LEVER PIN
864973-3	1	THROTTLE VALVE SPRING
865063-2	1	THROTTLE LEVER
865352-9	1	ROTOR LOCK NUT
869923-3	1	FRONT BEARING PLATE
869929-0	1	MOTOR SPACER
869931-6	1	THROTTLE VALVE SEAT
869932-4	1	THROTTLE VALVE
869933-2	1	INLET BUSHING
869943-1	1	MUFFLER
203148-2	1	CYLINDER (reversible)
203151-6	1	HANDLE (reversible)
617510-3	1	O-RING
812918-1	1	CYLINDER PIN
847234-2	1	O-RING
847603-8	1	MOTOR ALIGNMENT PIN
867554-8	1	REVERSING VALVE SCREW
869928-2	1	REAR BEARING PLATE
869939-9	1	MOTOR SPACER
869940-7	1	REVERSING VALVE
869942-3	1	REVERSING RING

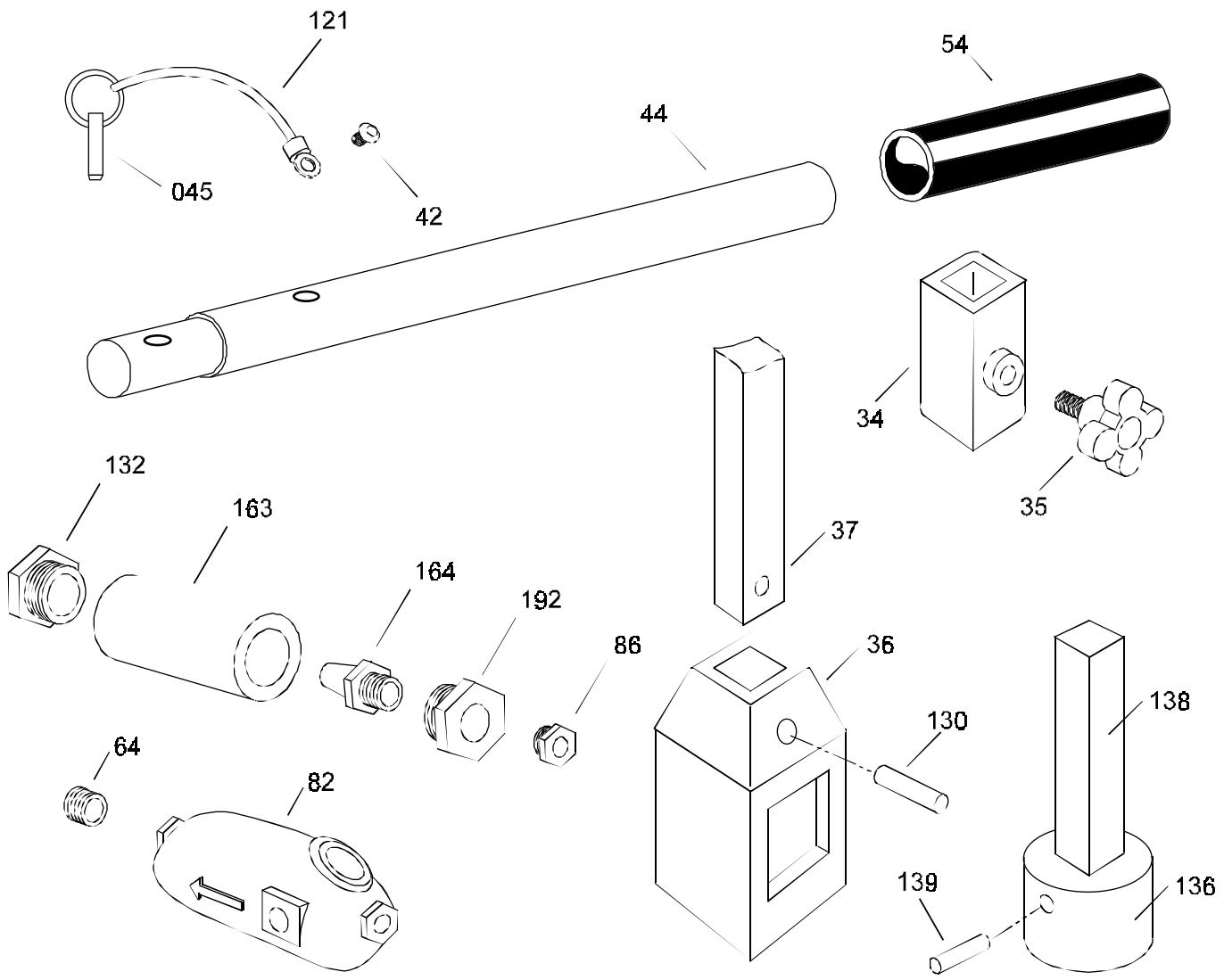
*All part numbers and reference numbers are air motor manufacturer numbers.*



# POW-R-DRIVE II

## Bill Of Material Pow-R-Drive II Accessories

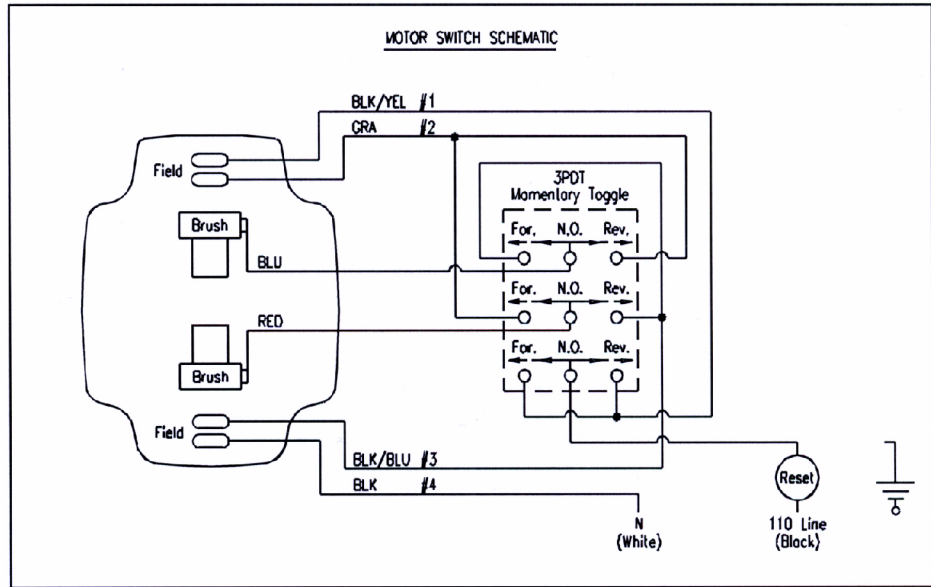
REF	PART NO	QTY	DESCRIPTION
34	05-034-00	1	STOP/COUPLING COLLAR
35	05-035-00	1	LOCKING SCREW
36	05-036-00	1	2" SOCKET
37	05-037-00	1	8 FT. LONG KEY
42	90-042-00	1	BHCS, 10-32 x 1/4"
44	11-044-00	1	EXTENSION, HANDLE ASSY
45	11-045-00	1	PIN, QUICK RELEASE
54	11-054-00	1	GRIP RUBBER
82	05-082-00	1	AIR LINE OILER ASSY
64	90-098-01	1	1/2" CLOSE NIPPLE LP.
86	90-098-10	1	BUSHING, RED 1/2 x 3/4
130	90-076-75	1	3/8 X 2-1/2 ROLL PIN
132	90-218-00	1	3/4 X 1-1/4 GALV BUSHING
136	05-136-00	1	15/16 DRIVE SOCKET
138	05-138-00	1	DRIVE KEY
12	62-121-00	1	LANYARD 6.0
139	90-056-70	1	1/4 X 2 ROLL PIN
163	02-163-00	1	FILTER BODY
164	02-164-00	1	FILTER ELEMENT
192	02-192-00	1	END PLUG
N/S	05-061-01	1	6 FT. X 1/2 HOSE WHIP
N/S	05-403-00	1	4 FT. VALVE KEY EXT.
N/S	02-401-00	1	H.D. WORM GEAR OIL/QT
N/S	02-402-00	1	AIR MOTOR OIL/1 GALLON
N/S	02-403-00	1	ANTI-FREEZE/1 GALLON
N/S	03-404-00	1	45 FT 1/2 HYD HOSE ASSY
N/S	05-417-00	100	RECORD KEEPING CARDS
N/S	05-418-00	500	VALVE EXERC. TICKETS



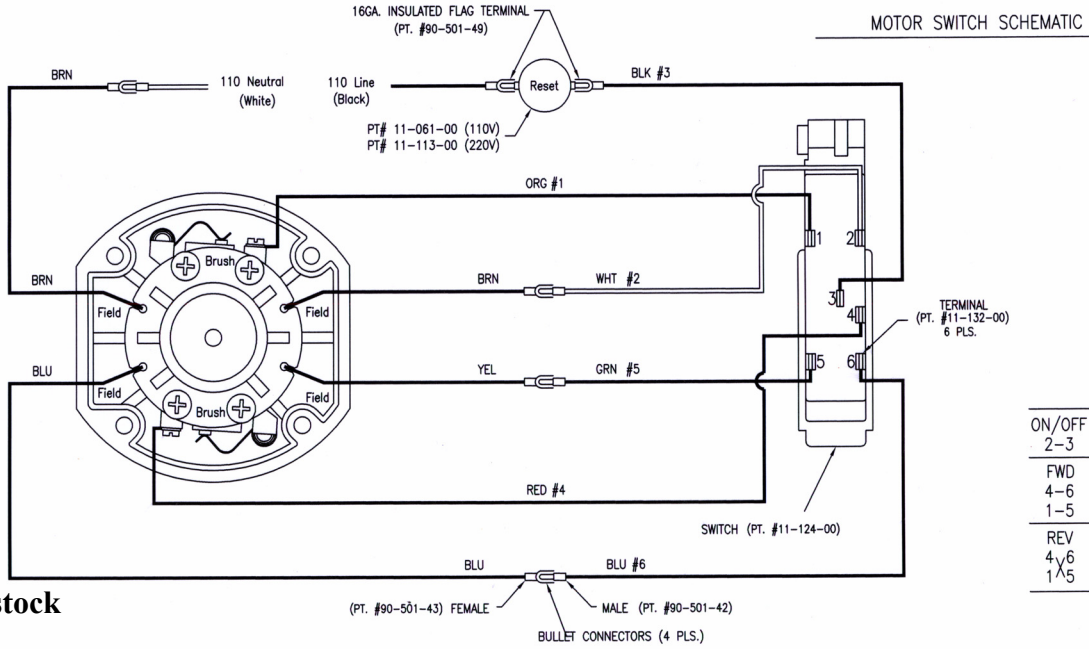
# POW-R-DRIVE II

## Electrical Schematics

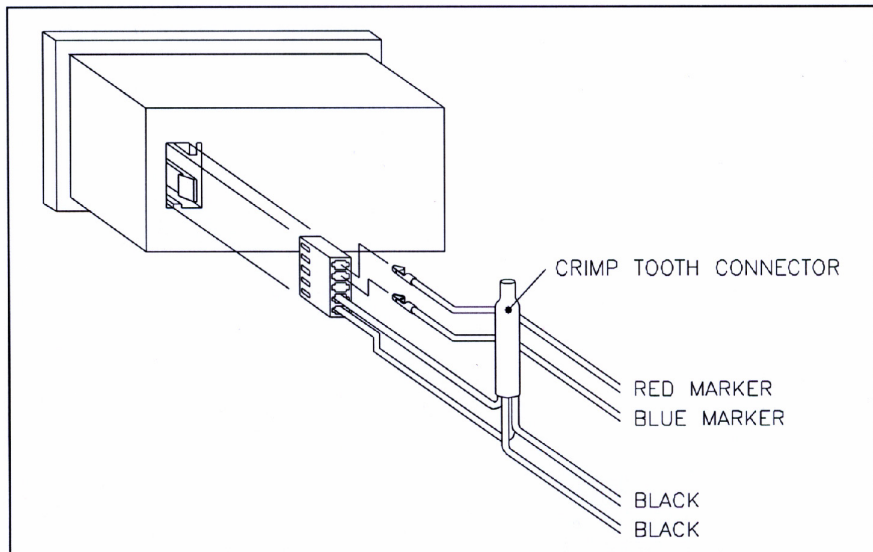
Milwaukee Electric



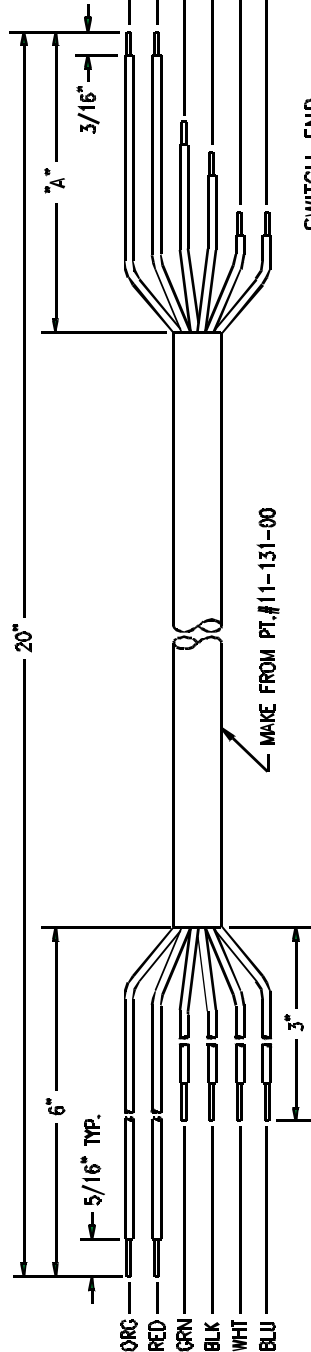
Eibenstock



Revolution Counter Wire



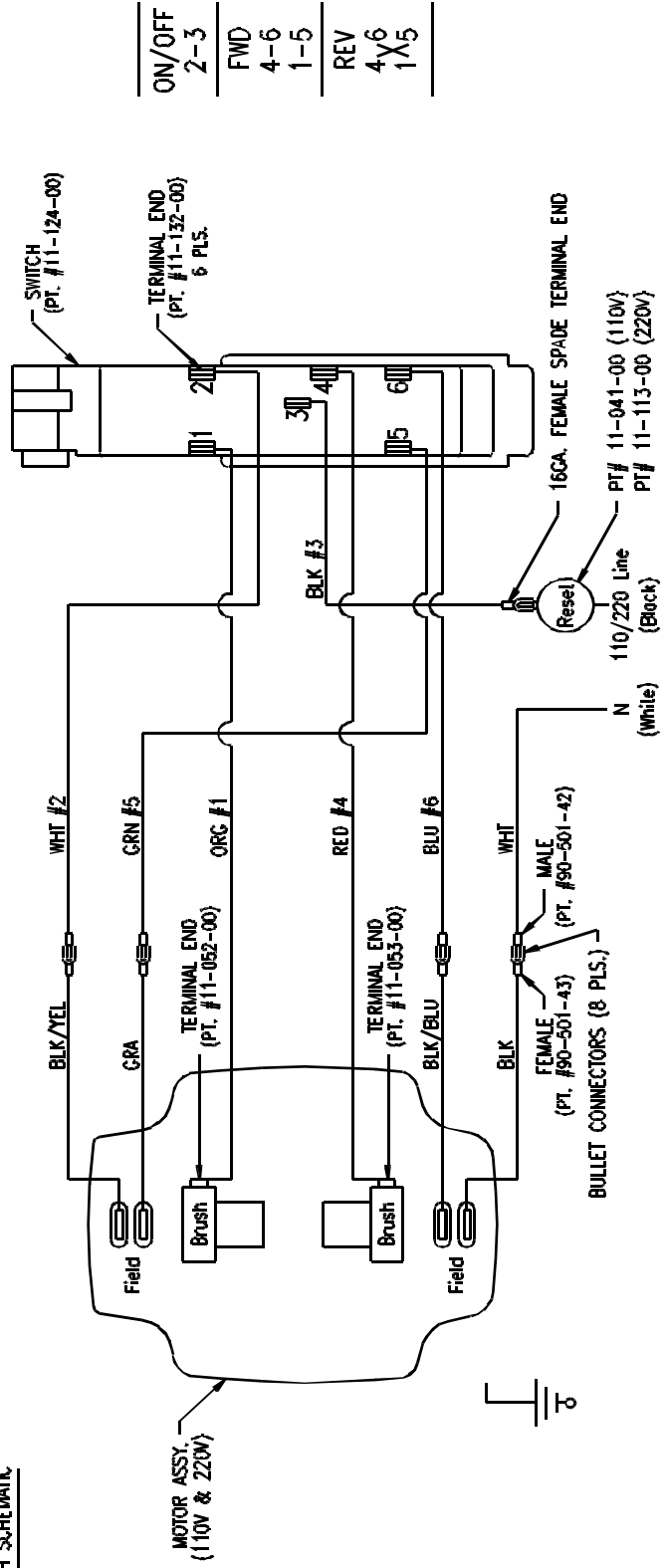
COLOR	SWITCH PIN NO.	4" (STRIP LENGTH)
ORG #1	(2-1/2")	
WHT #2	(2-1/2")	
BLK #3	(1-3/4")	
RED #4	(1-1/2")	
GRN #5	(1")	
BLU #6	(1")	



**MOTOR END**  
(STRIP AFTER SWITCH IS INSTALLED)

**SWITCH END**  
(STRIP AFTER FED THROUGH SWITCH HANDLE)

**MOTOR SWITCH SCHEMATIC**



ON/OFF	
2-3	FWD
4-6	REV
1-5	1X5
4X6	1X5

SECTION VIII

**VALVE EXERCISING  
LOG**







# POW-R-DRIVE II

## MANUAL / MACHINE REVISIONS

THE FOLLOWING IS A LISTING OF MANUAL / MACHINE CHANGES, REVISIONS, AND UPDATES TO INCLUDE:

- INSTRUCTIONAL CHANGES
- MACHINE REVISIONS
- ACCESSORY ADDITIONS
- DATE OF CHANGE (D.O.C.)

- 1.) ADDED EXTENSION HANDLE ASSEMBLY TO ACCESSORIES PAGE.  
( SEE PAGE 32 ) ( D.O.C: 25 MARCH 1994)
- 2.) ELECTRIC DRIVE BILL OF MATERIAL UPDATED TO REFLECT NEW PARTS  
( REFERENCE #'S 017, 018 & 112 - SEE PAGE 26-27 )( D.O.C: 25 MARCH 1994)
- 3.) HEAD ASSEMBLY BILL OF MATERIAL UPDATED TO REFLECT NEW PINION  
SHAFT ( REFERENCE # 014 - SEE PAGE 24-25 ) ( D.O.C: 25 MARCH 1994)
- 4.) UPDATED MACHINE SPECIFICATIONS - PAGE 5 ( D.O.C: 23 AUGUST 1995)
- 5.) RE-ORGANIZED MANUAL TO FOLLOW NEW FORMAT (D.O.C. April, 1998)

# POW-R-DRIVE II

## SECTION IX

## ORDERING INFORMATION

To place an order or to get more detailed information on any E.H. Wachs products, call us at:  
1-800-323-8185.

### ORDERING REPLACEMENT PARTS

Please use parts list provided in manual. Have part description and part number of required replacement part or parts to help expedite order and insure proper parts are being ordered.

### REPAIR INFORMATION

Please call E.H. Wachs Company prior to returning any equipment for repair. We will advise you of shipping and handling. Please enclose with equipment to be repaired your name, address, phone number and a brief description of problem or work to be done or estimated.

All repair work done at our plant will be estimated and the customer advised of cost and time required to complete repair.

### WARRANTY INFORMATION

Enclosed with the manual is a warranty card. Please fill out the registration card and return to E.H. Wachs. Retain the owners registration record and warranty card for your information.

### RETURN GOODS ADDRESS

E.H. Wachs Company  
100 Shepard Street  
Wheeling, Illinois 60090

#### Call or Write:


E.H. Wachs Company

100 Shepard Street  
Wheeling, Illinois 60090

847-537-8800

FAX: 847-520-1147 • 847-520-1168

Toll-Free: 1-800-323-8185

	<b>PIPE &amp; VALVE</b>
	<b>MAINTENANCE MACHINES</b>
Mod. <b>PRD II</b>	S/N: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
E.H. WACHS COMPANIES 100 Shepard St. Wheeling Il. 60090	