



E.H. Wachs
455 Comanche Circle
Harvard, IL 60033
www.wachsco.com

High Speed Handheld Valve Operator User's Manual



E.H. Wachs Part No. U10-010-MAN
Rev. 0-0310, March 2010

Revision History:
Original March 2010

Copyright © 2010 E.H. Wachs. All rights reserved.
This manual may not be reproduced in whole or in part
without the written consent of E.H. Wachs.

Table of Contents

Chapter 1: About the High Speed Valve Operator	1
Purpose of This Manual	1
How to Use The Manual	1
Symbols and Warnings	2
Manual Updates and Revision Tracking	2
Equipment Description	2
System Specifications	3
System Components	3
Motor Controls	4
Direction of Rotation	5
Telescoping Valve Key	6
Chapter 2: Safety	7
Operator Safety	7
Safety Symbols	8
Protective Equipment Requirements	9
Chapter 3: Operating Instructions	11
Site Preparation	11
Set-Up	11
Operation	13
Operator Position	13
Turning the Valve	13
Chapter 4: Maintenance	17
Lubrication	17
Repair	17
Replacing a Counter	18
Replacing the Sensors	19
Chapter 5: Parts Lists and Ordering	25
Drawings and Parts Lists	25
Ordering Information	28
Ordering Replacement Parts	28
Repair Information	28
Warranty Information	28
Return Goods Address	28

Chapter 1

About the High Speed Valve Operator

PURPOSE OF THIS MANUAL

This manual explains how to operate and maintain the high speed handheld valve operator. It includes instructions for set-up, operation, and maintenance. It also contains parts lists and diagrams to help you order replacement parts and perform user-serviceable repairs.

HOW TO USE THE MANUAL

This manual is organized to help you quickly find the information you need. Each chapter describes a specific topic on using or maintaining the equipment.

Each page is designed with two columns. This large column on the inside of the page contains instructions and illustrations. Use these instructions to operate and maintain the equipment.

The narrower column on the outside contains additional information such as warnings, special notes, and definitions. Refer to it for safety notes and other information.

In This Chapter

PURPOSE OF THIS MANUAL

HOW TO USE THE MANUAL

SYMBOLS AND WARNINGS

MANUAL UPDATES AND
REVISION TRACKING

EQUIPMENT DESCRIPTION

Throughout this manual, refer to this column for warnings, cautions, and notices with supplementary information.

SYMBOLS AND WARNINGS

The following symbols are used throughout this manual to indicate special notes and warnings. They appear in the outside column of the page, next to the section they refer to. Make sure you understand what each symbol means, and follow all instructions for cautions and warnings.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



NOTE

This symbol indicates a user notice. **Notices** provide additional information to supplement the instructions, or tips for easier operation.

MANUAL UPDATES AND REVISION TRACKING

Occasionally, we will update manuals with improved operation or maintenance procedures, or with corrections if necessary. Revised manuals will be available for customers. When a manual is revised, we will update the revision history on the title page and at the bottom of the pages.

You may have factory service or upgrades performed on the equipment. If this service changes any technical data or operation and maintenance procedures, we will include a revised manual when we return the equipment to you.

EQUIPMENT DESCRIPTION

The high speed valve operator is designed to turn valves from 6" to 60" at a higher speed than conventional valve

exercisers. This is advantageous in situations where you need to quickly open or close a valve, without needing to run a high-torque exercising operation.

The machine operates on 110 VAC power and utilizes a reversible motor to simplify valve exercising operations and to reduce operator effort.

System Specifications

Application	Operates all gate valves 6" to 60" (152 mm to 1524 mm) and other equipment requiring mechanized turning.
Maximum torque	350 lb-ft
Maximum speed	40 rpm
Power	110 V, 60 Hz AC; requires a 15 amp or 3500 W generator.
Rev. counters	Built in digital counter display with 1-revolution increments and push button reset.
Valve key size	1" (2.54 cm) square solid
Socket	2" (5.1 cm) square, AWWA standard
Dimensions	Length: 40" (102 cm) Width: 14" (36 cm) Height: 3.5" (9 cm)
Weight	31 lb (14 kg)
Options	Telescoping valve key up to 8 ft. long; 2" square AWWA standard ductile iron socket; stop collar; 15/16" drive socket

System Components

Figure 1-1 illustrate the components of the valve operator.

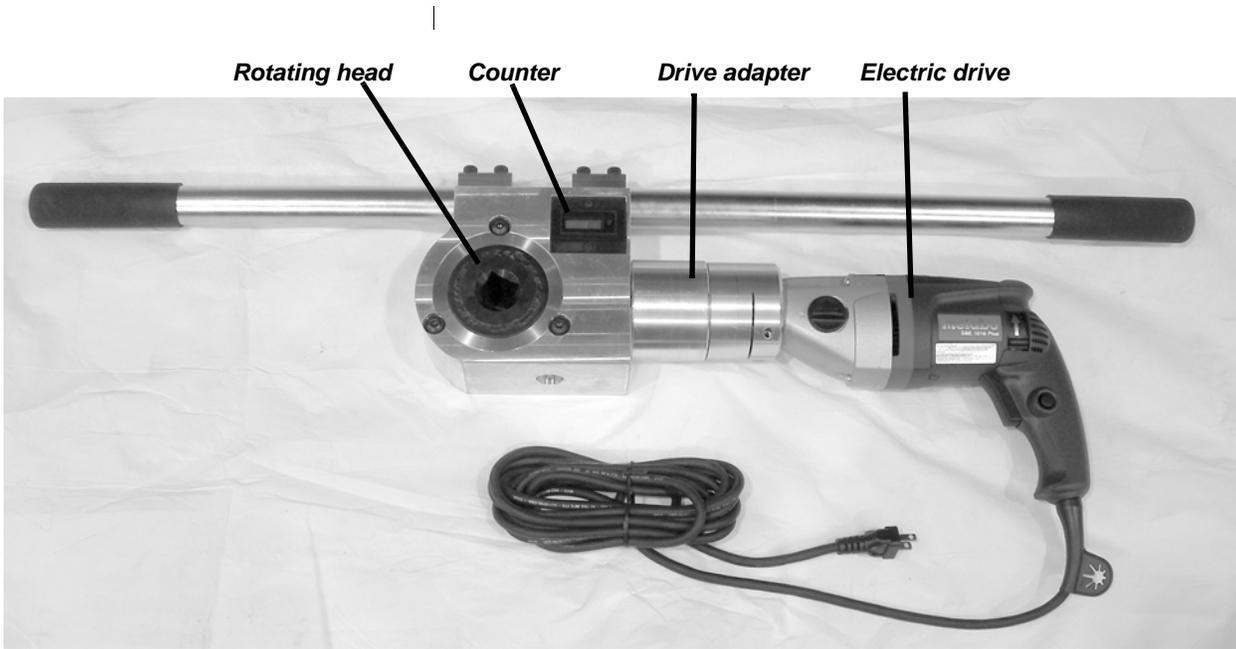


Figure 1-1. The photo illustrates the major components of the valve operator.

Motor Controls

Use the electric drive controls to set the speed, direction and the gear ratio. The gear ratio switch has settings for high range, low range, and neutral. The speed dial lets you vary the speed within the current range while running the valve operator.

Gear ratio switch

Speed dial



Use the speed control dial and the gear ratio switch to set the electric drive speed.

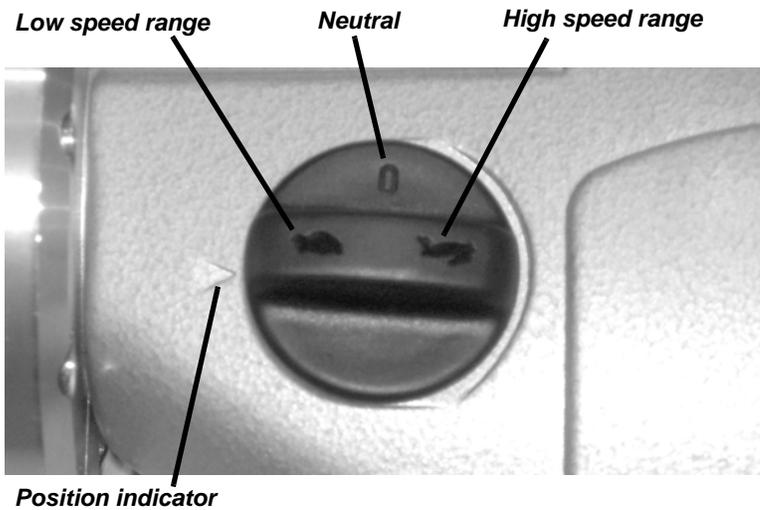


Figure 1-2. The gear ratio switch has positions for low speed (turtle), neutral (0), and high speed (rabbit). The switch is shown at low speed setting.

Direction of Rotation

The valve operator is reversible. Figure 1-3 shows the direction of rotation for the indicated motor direction. To reverse direction, slide the motor direction switch to the opposite position



Figure 1-3. The photo illustrates the direction of rotation for indicated motor direction.

Telescoping Valve Key

A telescoping valve key allows you to reach valves at different depths, and to adjust the length of the key to position the valve operator at the desired height. You can adjust the key from 4 to 9 feet in length, and add an extension for a maximum of 12 feet. Figure 1-4 shows the valve key.

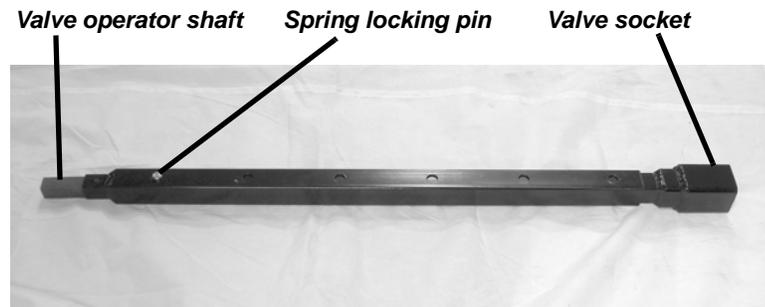


Figure 1-4. The telescoping valve key can be extended by pressing in the locking pin and pulling out the valve socket shaft.

Chapter 2

Safety

E.H. Wachs takes great pride in designing and manufacturing safe, high-quality products. We make user safety a top priority in the design of all our products.

Read this chapter carefully before operating the valve operator. It contains important safety instructions and recommendations.

OPERATOR SAFETY

Follow these guidelines for safe operation of the equipment.

- **READ THE OPERATING MANUAL.** Make sure you understand all setup and operating instructions before you begin.
- **INSPECT MACHINE AND ACCESSORIES.** Before starting the machine, look for loose bolts or nuts, leaking lubricant, rusted components, and any other physical conditions that may affect operation. Properly maintaining the machine can greatly decrease the chances for injury.
- **ALWAYS READ PLACARDS AND LABELS.** Make sure all placards, labels, and stickers are clearly legible and in good condition. You can purchase replacement labels from E.H. Wachs.
- **KEEP CLEAR OF MOVING PARTS.** Keep hands, arms, and fingers clear of all rotating or moving parts.

In This Chapter

OPERATOR SAFETY



Look for this symbol throughout the manual. It indicates a personal injury hazard.

Always turn machine off before doing any adjustments or service.

- **SECURE LOOSE CLOTHING AND JEWELRY.** Secure or remove loose-fitting clothing and jewelry, and securely bind long hair, to prevent them from getting caught in moving parts of the machine.
- **KEEP WORK AREA CLEAR.** Keep all clutter and nonessential materials out of the work area. Only people directly involved with the work being performed should have access to the area.

Safety Symbols



This icon is displayed with any safety alert that indicates a personal injury hazard.

WARNING

This safety alert indicates a potentially hazardous situation that, if not avoided, **could** result in **death or serious injury**.

CAUTION

This safety alert, with the personal injury hazard symbol, indicates a potentially hazardous situation that, if not avoided, **could** result in **minor or moderate injury**.

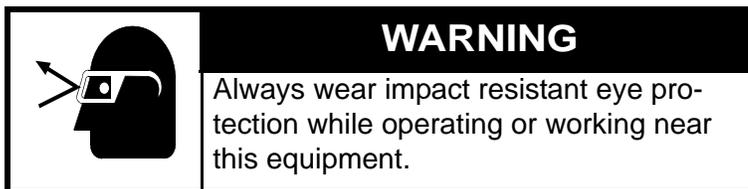
NOTICE

This alert indicates a situation that, if not avoided, **will** result in **damage to the equipment**.

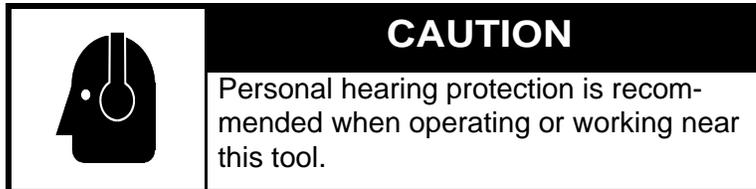
IMPORTANT

This alert indicates a situation that, if not avoided, **may** result in **damage to the equipment**.

Protective Equipment Requirements



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.



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 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.



Chapter 3

Operating Instructions

SITE PREPARATION

Select the appropriate length valve key so that the top of the key is at least waist-high when inserted on the valve nut. If necessary, use the optional valve key extension.

Make sure you have a place to stand with sure footing for both feet, and that you are not standing in water when plugging in or operating the machine.

Keep vehicles and any other equipment far enough away so that the handle of the valve operator can rotate around the valve key without obstruction.

SET-UP

1. Adjust the telescoping valve key to the appropriate length by pushing in the locking pin and pulling out the socket shaft. If necessary, add the extension to lengthen the key.

In This Chapter

SITE PREPARATION

SET-UP

OPERATION



The key should be adjusted so that the valve operator is approximately waist to chest high on the user.



Figure 3-1. Press in the locking pin to adjust the length of the valve key.

2. Insert the valve key socket onto the drive nut on the valve. Check that the top of the key is at the correct height.



Figure 3-2. Put the socket onto the valve nut.

3. Place the valve operator on the valve key. Orient the machine correctly for the direction you are turning the valve. Slide the head of the machine down onto the “shoulder” of the key shaft.

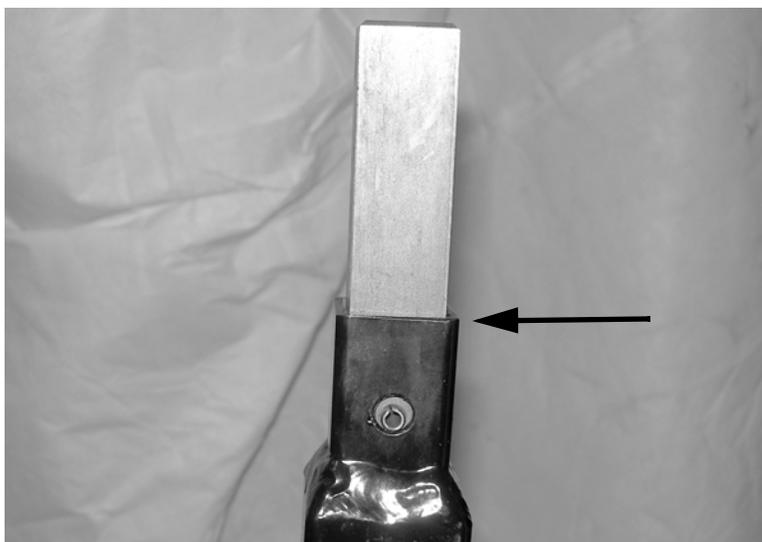


Figure 3-3. The valve operator rests on the shoulder at the top of the key shaft.

OPERATION

Operator Position

For safe operation, you should stand at the end of the machine with the electric drive. Hold the handle of the machine with one hand, and operate the electric drive switch with the other hand.

The machine can be operated by two people. One operator should stand at each end, out of the way of the handle's rotation.

Turning the Valve

1. Plug in the valve operator power cord.
2. Press the counter button to reset the counter to 0.
3. Set the speed dial to "A" (the slowest setting) to start.



WARNING:

The valve operator can produce up to 350 lb-ft (475 N-m) of torque. To avoid possible injury, stand at the end of the machine, instead of beside it where the handle can rotate into you.



NOTE: Start with the gear ratio switch in the low range.



Figure 3-4. Start with the speed dial set to the lowest speed (“A”).

4. Engage the electric drive by squeezing the power switch on the drive motor.
5. Run the valve operator for 2-3 revolutions to make sure you are turning the valve in the free direction. If you reach the end of travel, release the power switch and reverse the motor direction.
6. When you have verified the valve direction, turn the speed dial to set the desired speed.



Figure 3-5. Turn the speed dial to increase the speed.

7. To change between high and low gear ratios, release the power switch and turn the gear ratio switch. A rabbit icon indicates high speed range; a turtle indicates low speed range. The switch also has a neutral position (indicated by a 0).



Figure 3-6. Turn the gear ratio switch to the speed range desired.

8. If you are turning the valve to a specified position, watch the revolution counter and stop when you have reached the desired number of turns.
9. Turn the valve until you reach the desired position or the end of travel. Release the power switch.
10. If you are logging valve information, write down the direction and number of turns to reach the end of travel.
11. To reverse the valve, reverse the motordirection and repeat this procedure.



Chapter 4

Maintenance

LUBRICATION

There is one grease fitting on the valve operator head. Apply grease every few hours of operation.

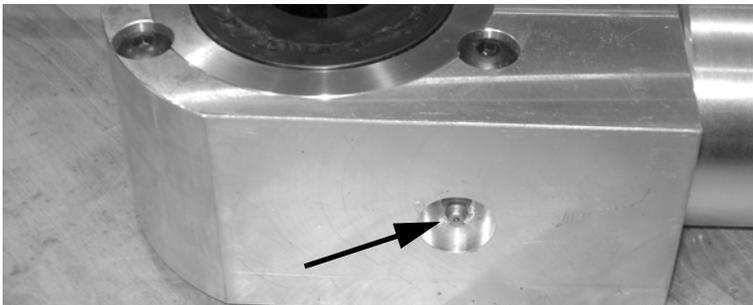


Figure 4-1. Apply grease through the grease fitting on the head.

REPAIR

The revolution counter display and sensors can be replaced in the event they become damaged or stop working.

Before performing any service, make sure the valve operator is unplugged from the electrical source.

In This Chapter

LUBRICATION

REPAIR

Replacing the Counter

You do not need to remove the handle to replace the counter.

1. Remove the 2 screws holding the counter in the head.

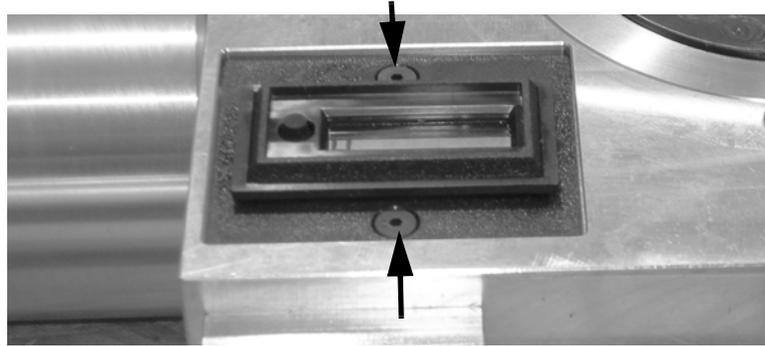


Figure 4-2. Remove the 2 screws to take the counter out of the head.

2. Pull the counter out gently. Pull the electrical connector off the back of the counter.

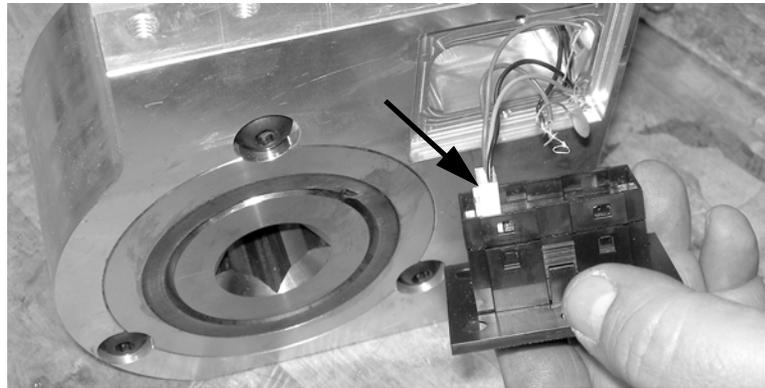


Figure 4-3. Pull the connector from the back of the counter.

3. Plug the connector into the back of the new counter. The connector can only be connected in one orientation.

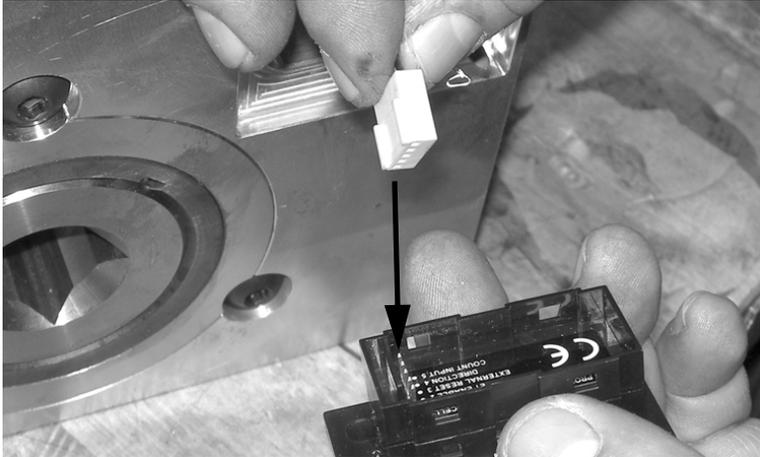


Figure 4-4. Plug the connector into the pin block on the back of the counter.

4. Carefully tuck the wires back into the head and put the new counter in.
5. Put in the 2 screws and tighten them snugly.

Replacing the Sensors

If the counter is working but is not incrementing as the valve operator turns, the counter sensors may be malfunctioning. You will have to remove the handle from the head to replace the sensors.

1. Remove the 8 screws that hold the handle to the head, and remove the handle.

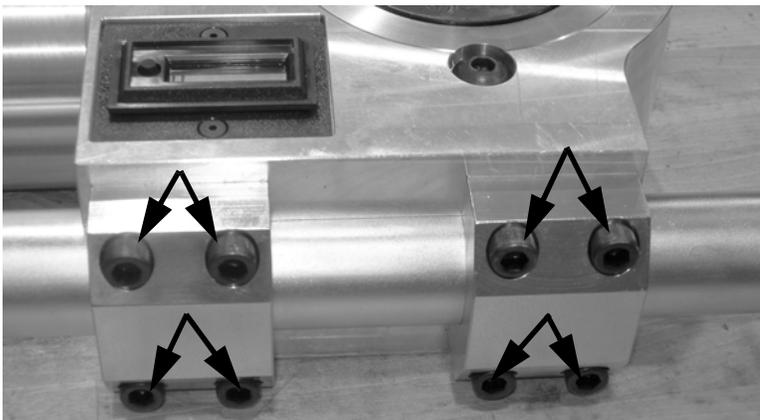


Figure 4-5. Remove the 8 screws holding the handle to the head assembly.

2. Remove and unplug the counter as described in the previous section.
3. Place the head assembly on a suitable work surface with the set screw holes on top. Loosen the two set screws holding the sensors.

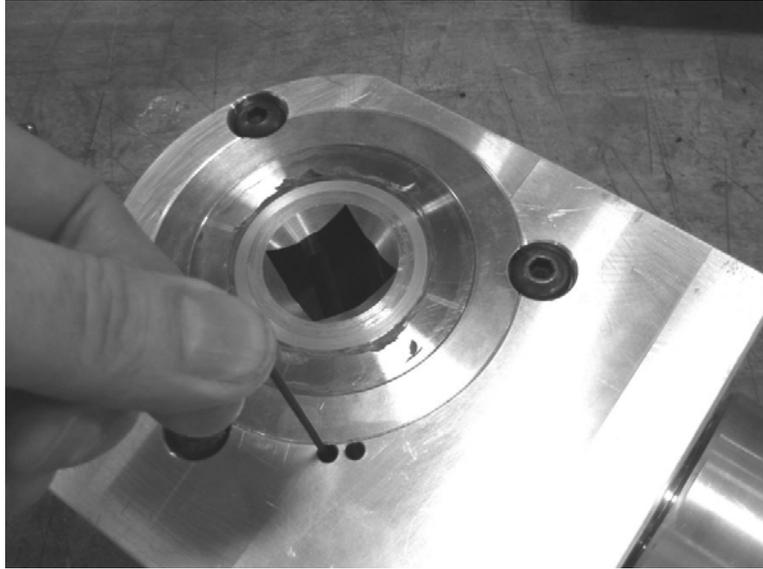


Figure 4-6. Loosen the 2 screws holding in the sensors.

4. Remove the sensors by pulling them out of the machine shaft cavity. The wires, connector and sensors are a single assembly.

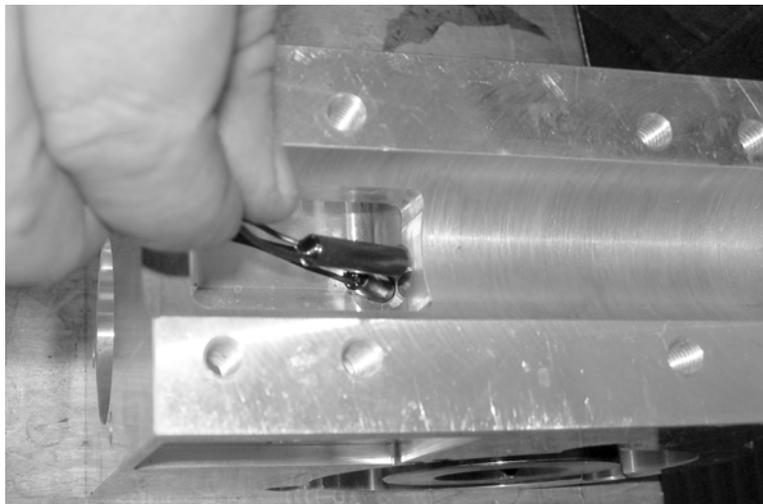


Figure 4-7. Remove the sensors.

5. Remove the set screws and verify clamping pads are in place. These small rubber pads distribute the clamping force of the screw to prevent damage to the sensor. Pads should stay in the set screw hole and block sight of the sensor bore.

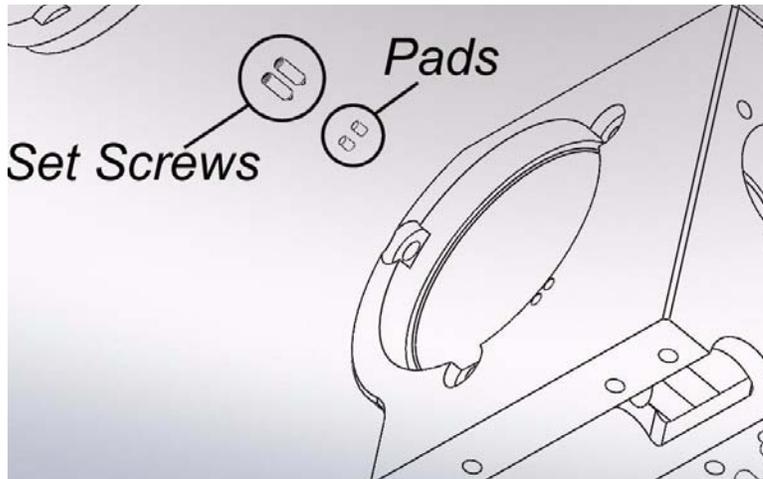


Figure 4-8. Verify pad placement, there is no need to remove the clamping pads.

6. Identify sensor position. The sensor marked with a red band senses rotation and must be placed in the proper bore as indicated in Figures 4-10 & 4-11.

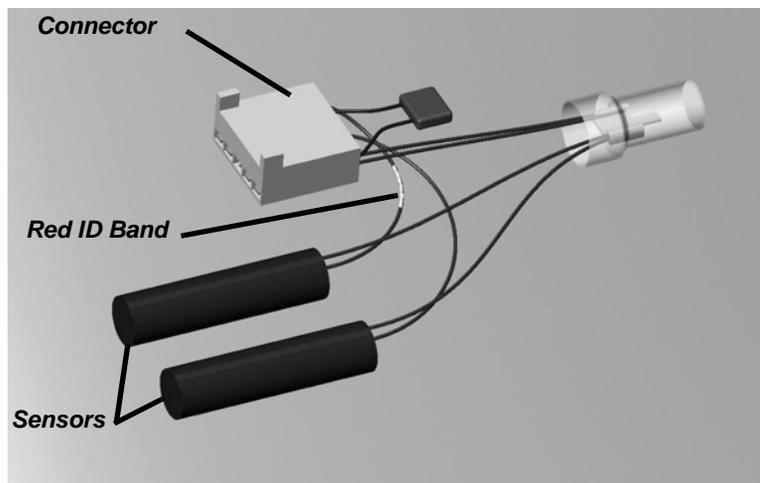


Figure 4-9. The sensors and wires to the counters are a single assembly.

7. Replace the new sensors into the holes to the cavity. Ensure proper position of marked sensor.

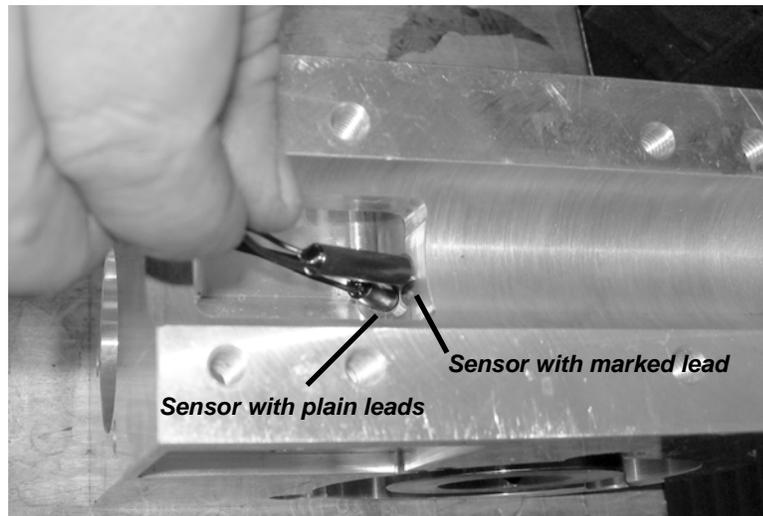


Figure 4-10. Insert the two sensors into the holes leading into the machine shaft cavity.

8. Slide sensors in until both contact the hub. Lightly tighten set screws. Sensors must be able to move with minimal force but not freely.

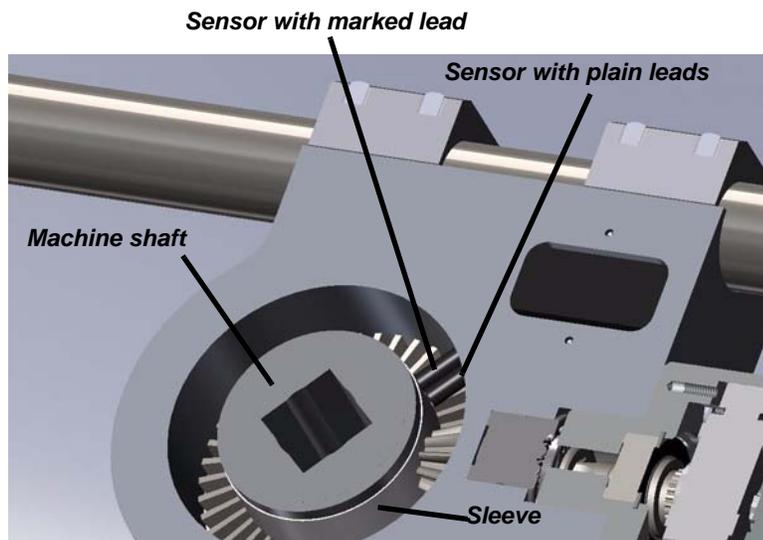


Figure 4-11. Cross section of assembly showing sensors against magnet retaining sleeve.

9. Rotate the drive hub two full revolutions.
10. Reconnect the counter and verify operation.

11. Once proper operation is confirmed, tighten set screws. Do not exceed 2 in*lbs or damage to the sensors may result.

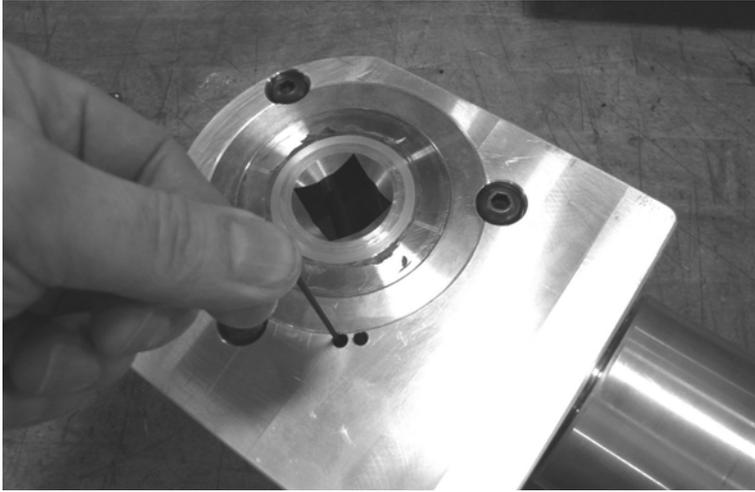


Figure 4-12. Tighten the 2 set screws to secure the sensors in place.

12. Install counter.
13. Re-attach the head to the handle.



Chapter 5

Parts Lists and Ordering

DRAWINGS AND PARTS LISTS

The drawings and parts list on the following pages illustrate the components of the valve operator assembly.

In This Chapter

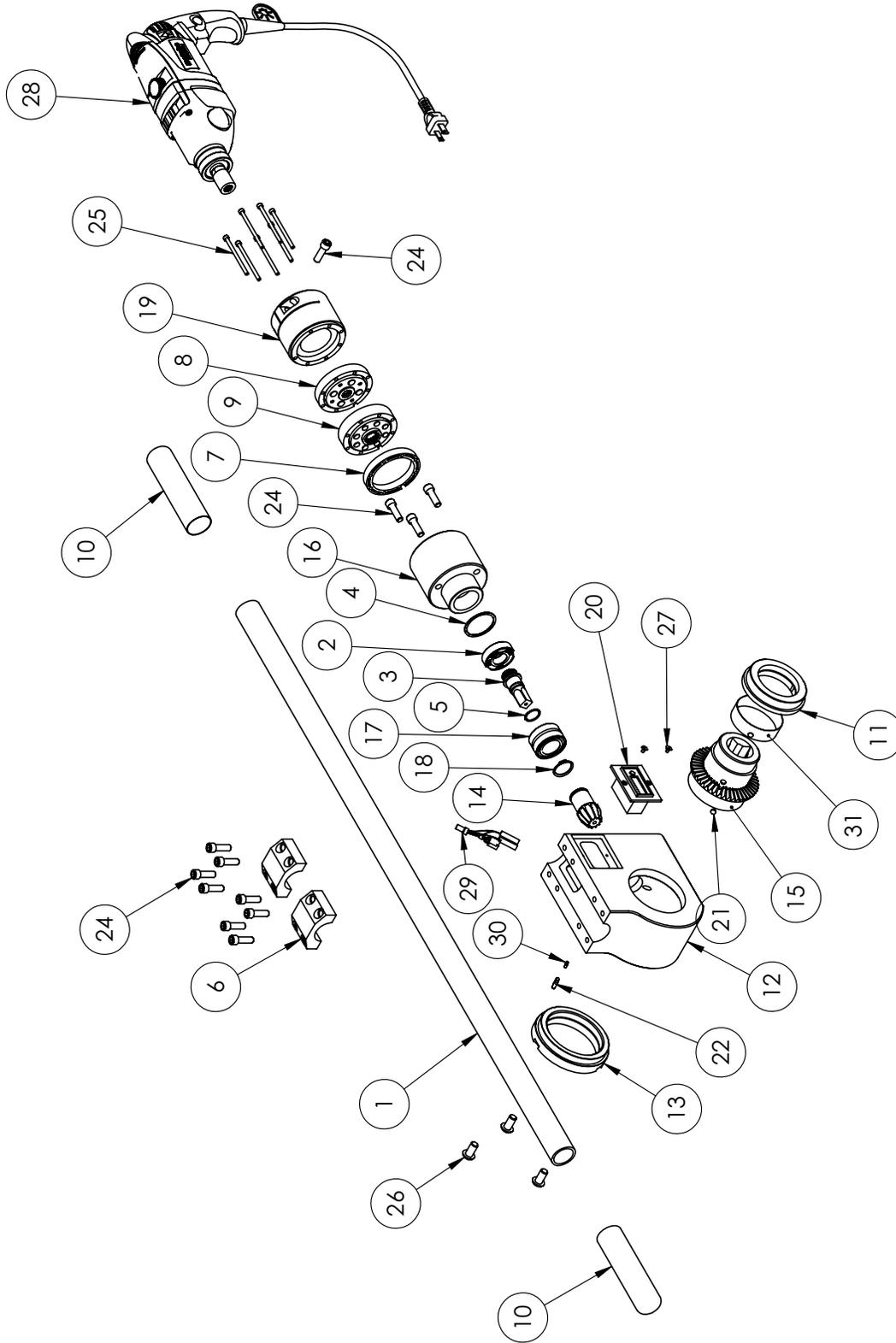
DRAWINGS AND PARTS LISTS

ORDERING INFORMATION

Bill of materials for the high speed valve operator.

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	U10-010-06	HANDLE	1
2	66-148-00	BEARING	1
3	66-144-00	COUPLER, DRIVE	1
4	16-076-00	RING, RETAINING	1
5	16-077-00	RING, RETAINING	1
6	11-030-00	CLAMP, TOP HALF	2
7	56-202-00	SPACER, GEAR SET	1
8	56-203-00	GEAR, PLANETARY	1
9	11-103-00	GEARBOX, PLANETARY OUTPUT	1
10	11-054-00	RUBBER GRIP, HANDLE	2
11	U10-010-03	BEARING, RADIAL	1
12	U10-010-01	HOUSING, HIGH SPEED VALVE TURNER	1
13	U10-010-02	BEARING, GEAR END	1
14	56-009-00	GEAR, PINION	1
15	U10-010-10	DRIVE WELDMENT	1
16	U10-010-05	HOUSING, GEAR, MODIFIED	1
17	56-040-00	BEARING	1
18	56-039-00	RING, SNAP	1
19	16-075-00	HOUSING, REAR	1
20	63-007-00	COUNTER	1
21	63-026-00	MAGNET	1
22	90-024-02	SSSCP 8-32 X 1/2	2
23	90-500-05	GREASE FITTING, 1/4-28 UNF, STRAIGHT	1
24	90-060-10	SHCS 5/16-18 X 1.00	12
25	90-020-25	HX-SCHS #8-32 X 2.5	7
26	90-072-07	BHCS .375-16 X .75	3
27	90-033-02	FHCS #6-32 X .25	2
28	U10-010-20	MOTOR ASSEMBLY	1
29	U10-010-07	SENSOR ASSEMBLY	1
30	11-145-01	PAD, SENSOR CLAMPING	2
31	U10-010-11	SLEEVE, MAGNET RETAINING	0.75

See facing page for identification of parts.



HIGH SPEED HAND HELD VALVE OPERATOR

E.H. WACHS UTILITY PRODUCTS PROJECT NO.: U10-10

ASSEMBLY NO: U10-10-00

PRODUCTION DATE: APRIL 2010

ORDERING INFORMATION

To place an order, request service, or get more detailed information on any E.H. Wachs products, call us at one of the following numbers:

U.S Toll Free. 866-392-1060

US Local: 815-943-4785

Ordering Replacement Parts

When ordering parts, refer to the parts list in this chapter. Please provide the part description and part number for all parts you are ordering. Always note your machine model number when ordering.

Repair Information

Please call us for an authorization number before returning any equipment for repair or factory service. We will advise you of shipping and handling. When you send the equipment, please include the following information:

- Your name/company name
- Your address
- Your phone number
- A brief description of the problem or work to be done.

Before we perform any repair, we will estimate the work and inform you of the cost and time required to complete it.

Warranty Information

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

Return Goods Address

Return equipment for repair to the following address.

E.H. Wachs

Utility Products Division

455 Comanche Circle

Harvard, Illinois 60033 USA



E.H. Wachs

455 Comanche Circle • Harvard, IL 60033
815-943-4785 • www.wachsco.com