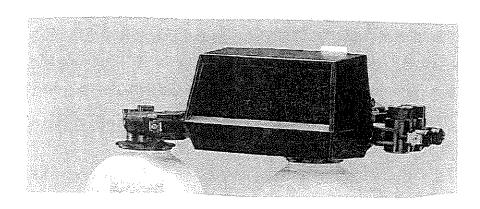


**Quality Water Treatment Products** 



# WTFTT Metered Alternating Series Residential Softeners

Installation and Operation Manual

March 2015 Version

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## Installation and Operating Instructions for WTF Top Mount Softeners

| **** *** *** *** *** *** *** *** *** * | M | O | d | e | Ĭ | #. |
|--|---|---|---|---|---|----|
|--|---|---|---|---|---|----|

| WTF-320TT BY      | 32,000 grain alternating softener system  |
|-------------------|---|
| <br>WTF320IHTT BY | 32,000 grain alternating softener system  |
| <br>WTF-480TT BY  | 48,000 grain alternating softener system  |
|                   | 64,000 grain alterinating softener system |

#### Shipping Carton Description / unit:

| # of cartons | Contents          | Description  |
|--------------|-------------------|--|
| 1            | Mineral tank      | Distributor pipe installed   |
| <b>1</b> .   | Brine tank        | Brine tubing, brine well, brine shutoff valve, overflow fittings installed.  *NOTE: WTF control shipped in brine tank. |
| 1            | WTF control valve | WTF control valve and bypass   |
|              | C-800             | Pre-loaded @ factory   |

Note: The 480 and 640 units have a Vortech Distributor.

### Filter Media is Packaged as Follows:

| Model #       | C-800 Cation Resin |
|---------------|--------------------|
| WTF-320TT BY  | 1.0 CF*            |
| WTF320IHTT BY | 1.0 CF*            |
| WTF-480TT BY  | 1.5 CF*            |
| WTF-640TT BY  | 2.0 CF*            |

<sup>\*</sup>Already installed at the factory

NOTE: THIS SOFTENER IS NOT INTENDED TO BE USED FOR TREATING WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION WHETHER BEFORE OR AFTER THE SYSTEM.

#### Water Softener Positioning:

- 1. Place water softener in desired position, far enough from walls and other obstructions to allow for servicing the unit.
- 2. Place the water softener within reasonable access to a grounded 115V/60 HZ circuit and a legal drain line connection.

#### Water Softener Tank Loading:

- 1. Center the distributor and make sure it is resting on the bottom of the tank. The top of the distributor pipe should be **flush with the top of the tank** (this was prefitted at the factory).
- 2. Cover the top opening of the distributor pipe before filling the tank with media.

#### WTF Control Valve:

- 1. Turn the control valve upside down and ensure that the control valve distributor o'ring is in place. Use silicone lubricant on the o'ring.
- 2. Place the control valve onto the distributor pipe and into the tank opening.
- 3. Thread the control valve hand tight. Do not overtighten.
- 4. The control valve's drain connection is 1/2" npt and is located on the back right of the control valve.

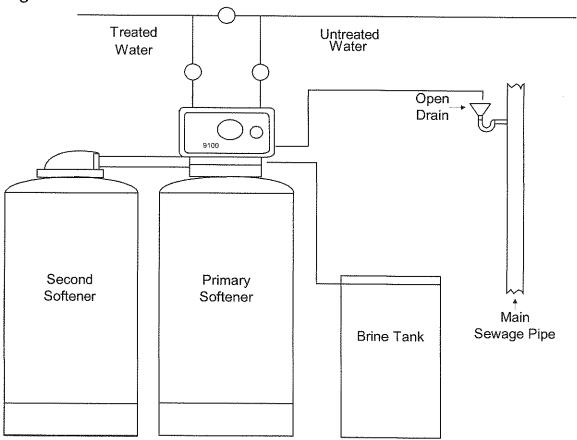
#### Service and Drain Piping:

- 1. Pipe softener system into the service lines (Figure 1 on P. 2) using quality ball valves and the 9100 stainless steel bypass valve. The inlet and outlet connections of the control valve are 1" and are located on the back of the valve body. Always follow local plumbing codes when installing the water treatment equipment.
- Use unions on inlet, outlet, and drain line piping. If sweat fittings are used, be sure soldering is done in such a manner as not to allow heat to reach the valve. If Schedule 80 PVC is used, make sure to follow the proper primer and solvent instructions. HEAT DAMAGE TO THE CONTROL VALVE VOIDS WARRANTY.
- 3. The drain line connection must be of adequate size to allow for full regeneration flow.

- The control valve drain connection is already installed.
- Use only 5/8" poly tubing for drain line.
- Do not overtighten or 9100 control valve may be damaged.
- Maximum drain line length is 20 feet.
- Maximum drain line height is 8 feet above the control valve.
- The end of the drain line must be piped to an open, vented drain.
- Always follow local plumbing codes when piping drain lines to a waste pipe.

## UNDER NO CIRCUMSTANCES SHOULD THERE BE A DIRECT CONNECTION WITH SANITARY SEWAGE FACILITIES.

Figure 1



#### Electrical Requirements:

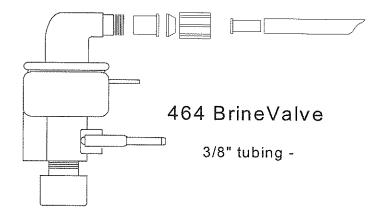
Always follow all local electrical codes when installing our water treatment equipment.

- 1. Provide a properly grounded 115V/60 HZ electrical outlet.
- 2. Maximum amperage required is 3 amps.
- 3. Make sure the electrical service provides power 24 hours per day. Avoid using outlets that are switch controlled.
- 4. Follow all local electrical codes when installing our water treatment equipment.

#### Brine Tank:

- 1. The brine tank should be located directly beside the water softener system mineral tanks.
- 2. Connect one end of the 3/8" OD poly tubing to the compression fitting on top of the brine shutoff valve located in the brine tank, and connect the other end to the compression fitting on the 9000 control valve.
- The brine shutoff valve contains a float that controls the water level in the brine tank. The float height was preset at the factory.

Figure 2 – Tubing Assembly Guide



#### Filling Water Softener with Water:

- 1. Close inlet and outlet ball valves.
- 2. Turn Manual Regeneration Knob in a clockwise direction until you reach the Backwash position.
- 3. Open inlet ball valve 1/4 turn and allow water to fill tank slowly for approximately 10 minutes. After all air has been purged from tank, fully open inlet ball valve and allow water to run in this position for 15 minutes.
- Turn the Manual Regeneration Knob in a clockwise direction until you reach the Rapid Rinse position. Allow the unit to stay in this position for approximately 10 minutes to purge the media fines to drain.

5. Plug the timer into the electrical outlet. The timer will automatically advance to the service position after completing the Rapid Rinse cycle. If water runs dirty to service, place unit in backwash position and allow the timer to go through a complete regeneration. The total regeneration will take approximately 2 hours. The unit will be in the service position after regeneration is complete.

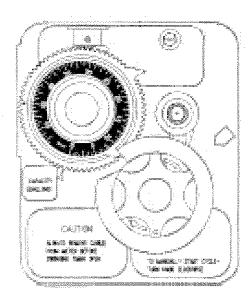
## 9100 Control Valve Timer Settings: (Refer to Figure 2)

Regeneration Timing Cycles are preset at the factory.

- 1. Backwash = 10 minutes
- 2. Brine/Slow Rinse = 50 minutes
- 3. Fast Rinse = 5 minutes

Note: reference "Specification Table" on previous page.

Figure 3



## <u>Setting the Gallon Wheel</u> controls how often the softener system regenerates.

- 1. Use the formulas below to calculate gallons between regenerations.
  - a) Calculate Total Compensated Hardness (gpg):
     Total Compensated Hardness (gpg) = Total Hardness (gpg) + [3 x Iron (ppm)]
  - b) Calculate Total Capacity (gallons):

    <u>Total Capacity (gallons)</u> = Softener System Capacity (30,000 grains) ÷ Total Compensated Hardness (gpg)
  - c) Calculate Total Gallons with Regeneration Adjustment: <u>Total Adjusted Capacity (gallons)</u> = Total Capacity (gallons) – Regeneration Usage (100 gallons)
  - d) Divide Total Adjusted Capacity by 100 to set the Gallon Wheel
- 2. Locate the Gallon Wheel on the timer. (See Figure 2 above.) The Gallon Wheel represents gallons of water (Total Adjusted Capacity) after dividing by 100. Therefore the maximum possible setting between regenerations is 5600 gallons.
- 3. Set the Gallon Wheel to the final answer in d) of the calculations above.

#### Final Check:

- 1. Make sure that the drain line connection meets all plumbing codes and that the drain line size can handle the backwash flow rate of the softener system.
- 2. Make sure the Inlet and Outlet ball valves are open and the Bypass ball valve is closed.
- 3. Make sure the 9000 control valve timer is plugged into an electrical outlet with power 24 hours per day.
- 4. Check all piping for leaks.
- 5. Check gallonage settings.
- 6. Check brine line connection at brine tank and 9000 control valve.

### **Troubleshooting**

### **Symptom:** Unit Fails to Regenerate

| Cause                            | Solution                           |
|----------------------------------|------------------------------------|
| Faulty electrical supply         | Verify that electrical power is    |
|                                  | getting to the outlet              |
| Low inlet water pressure         | Verify a minimum 20 psi inlet      |
|                                  | water pressure                     |
| Drain line is restricted         | Insure that the drain line is free |
|                                  | of blockage                        |
| Defective timer motor            | Replace the timer motor            |
| Plugged backwash flow control    | Clean or replace the backwash      |
|                                  | flow control                       |
| All skipper pins are slid inward | Slide the desired number of pins   |
|                                  | outward                            |
| The injector is plugged          | Clean the injector                 |

### **Symptom:** Hard Water When Unit is in Service Position

| Cause                          | Solution                             |
|--------------------------------|--------------------------------------|
| The bypass valve is open or    | Insure that the bypass valve is in   |
| defective                      | the service position                 |
| No salt in the brine tank      | Add solar salt to the brine tank     |
| Not enough water in the brine  | Verify that the 9000 timer is set    |
| tank                           | for the proper amount of salt        |
|                                | usage                                |
| Unit fails to draw brine (salt | See symptom: Unit fails to draw      |
| water)                         | brine                                |
| Excessive water usage          | Set the timer to regenerate more     |
|                                | often                                |
| Loss of cation resin           | See symptom: Loss of cation          |
|                                | resin                                |
| Change in raw water hardness   | Test the raw water hardness          |
| level                          | level and adjust regeneration        |
|                                | frequency                            |
| Leak at the distributor tube   | Verify that the distributor is flush |
|                                | with the top of the tank             |

#### **Symptom:** Unit uses too Much Salt

| Cause                             | Solution   |
|-----------------------------------|--|
| Improper salt usage timer setting | Verify that salt usage setting on<br>the back of the timer is set<br>according to the Specification<br>Reference Table |
| Excessive water in the brine tank | See symptom: Excessive water in Brine Tank   |

#### **Symptom:** Loss of Cation Resin

| Cause                            | Solution                        |
|----------------------------------|---------------------------------|
| Backwash flow control is missing | Verify that the proper backwash |
| or is the incorrect size         | flow control is installed       |
| Air in the system                | Verify that the well system is  |
|                                  | operating properly              |

#### **Symptom:** Excessive Water in the Brine Tank

| Cause                             | Solution                            |
|-----------------------------------|-------------------------------------|
| Injector is plugged               | Clean or replace the injector       |
| Defective or damaged              | Replace the piston/spacers          |
| piston/spacers assembly           | assembly                            |
| The brine float assembly seals    | Replace the 464 brine float         |
| on the 464 brine tank shutoff are | assembly                            |
| dirty or worn                     |                                     |
| Salt setting at the back of the   | Verify that the salt setting on the |
| timer assembly is set incorrectly | timer assembly corresponds with     |
|                                   | the reference table                 |
| Drain line is restricted          | Insure that there are no            |
|                                   | restrictions in the drain line      |
|                                   | piping                              |
| Plugged backwash control          | Clean the backwash flow control     |
|                                   | (BWFC)                              |

#### **Symptom:** Unit Fails to Draw Brine

| Cause                                     | Solution   |
|---|--|
| Injector is plugged                       | Clean or replace the injector                                  |
| Loose suction line connection             | Verify that all suction line connections are tight             |
| Drain line is restricted                  | Insure that there are no restrictions in the drain line piping |
| Low inlet water pressure                  | Verify a minimum 20 psi inlet water pressure                   |
| Improper installation of distributor pipe | Verify that the distributor is flush with the top of the tank  |

#### **Symptom:** Continuous Flow to Drain

| Cause                          | Solution                    |
|--------------------------------|-----------------------------|
| Defective or damaged           | Replace the piston/spacers  |
| piston/spacers assembly        | assembly                    |
| Piston rod assembly is damaged | Replace piston rod assembly |
| Drive motor failure            | Replace the drive motor     |

#### **Symptom:** Loss of Water Pressure

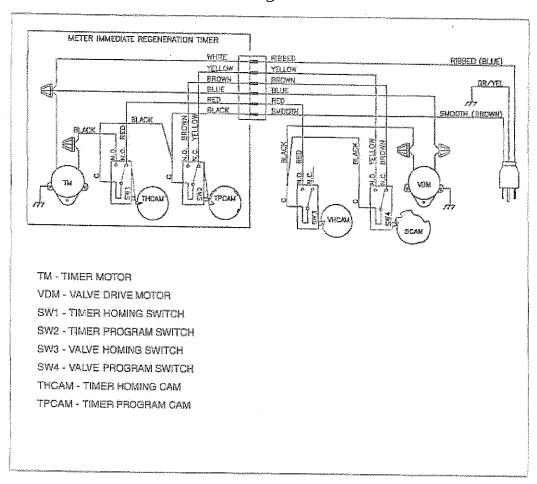
| Cause   | Solution                              |
|---|---------------------------------------|
| Dirt build-up in softener system tank                               | Clean or replace the Cation Resin     |
| Dirt build-up in the inlet piping to the Water Softener system Unit | Clean or replace the inlet piping     |
| Distributor pipe is plugged   | Clean or replace the distributor pipe |

### **Symptom:** Control Valve Cycles Continuously

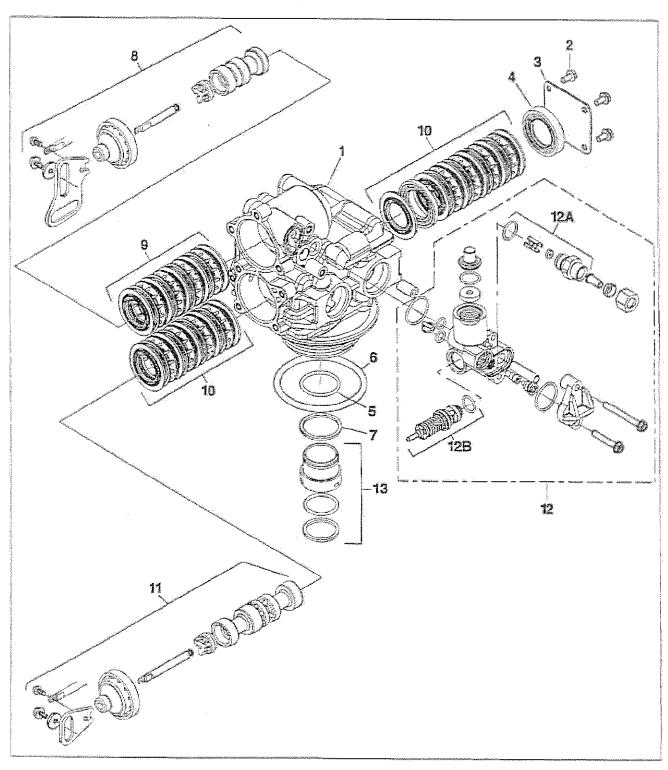
| Cause                    | Solution                   |
|--------------------------|----------------------------|
| Defective timer assembly | Replace the timer assembly |

### Model 9000/9100/9500

### Mechanical Timer Valve Wiring



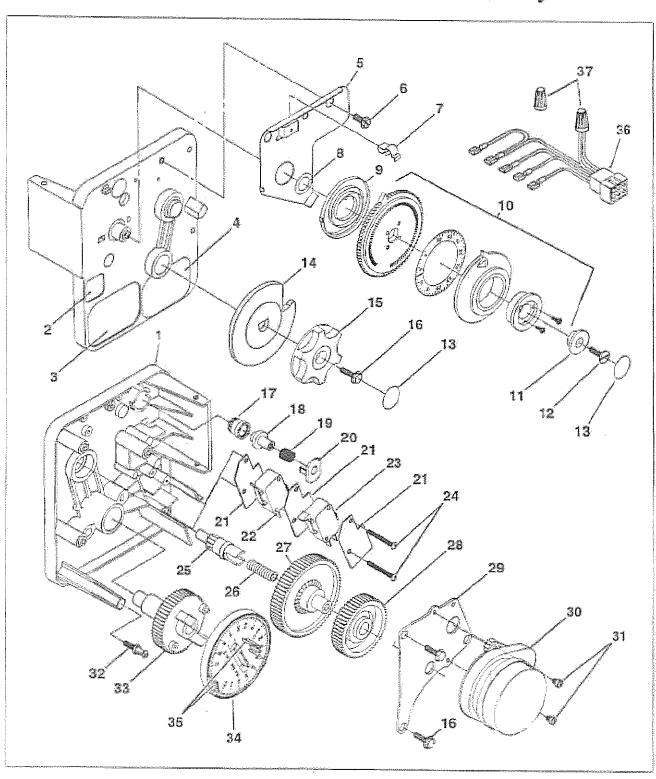
9100 Control Valve Assembly



## 9100 Control Valve Assembly

| ltem                    | Quantity      | Part Number                                   | Description   |          |                  |          |              |       |
|-------------------------|---------------|---|---|----------|------------------|----------|--------------|-------|
| 4                       | 1             | 40 <del>6</del> 88                            | valve body assembly   | -        |                  |          |              |       |
| 2                       | 4             | 15137   | screw, hex washer #10-24 x 3/8"   |          |                  |          |              |       |
| 3                       | of the second | 14906   | end plate   |          |                  |          |              |       |
| 4                       | *             | 14928   | end (AUG  |          |                  |          |              |       |
| 5                       | 1             | 16054   | O-ring, †24:  |          |                  |          |              |       |
| 6                       | 1             | 18303   | O-rang, 356   |          |                  |          |              |       |
| 7                       | 1             | 40538   | reteiner, 32mm  |          |                  |          |              |       |
| 8                       | 4             | 60400   | piston too assembly   |          |                  |          |              |       |
| 9                       | 1             | 60125   | ses and spacer kit, top   |          |                  |          |              |       |
|                         | 1             | 60125-20                                      | seal and spacer kit, top (559PE)  |          | į.               |          |              |       |
| 10                      | Action        | 60421   | seal and spacer ks, boltom  |          |                  |          |              |       |
|                         | <b>5</b>      | 60421-20                                      | seal and spacer kit, bottom (559PE)   |          |                  |          |              |       |
| 77                      | all of        | 60401   | piston assembly, bottom   |          |                  |          |              |       |
| 12                      | 1             | 6038 <b>5-XXXX</b>                            | injector assembly   |          |                  |          |              |       |
|                         |               |   | (see following chart for desh numbers)  | _        | 75. V. 1006. 244 |          | en           |       |
|                         |               |   | injector  | number   | DLFC             | number   | BLFC         | umper |
|                         |               |   | red #0  | 00       | Blank            | 0        | Elank        | 0     |
|                         |               |   | white #1  | 01       | 1.2              | n)<br>L  | 0.25         | 1     |
|                         |               |   | Side All  | C2.      | 1.5              | <u>n</u> | 0.50<br>1.00 | 2     |
|                         | ¥             |   | yeley   | 02<br>04 | 2.0<br>2.4       | 4        | l ASA        | G.    |
|                         |               |   | green <del>da</del>   | (Sec.    | 3.0              | **<br>5  |              |       |
|                         |               |   |   |          | 3.5              | 6        |              |       |
|                         |               |   |   |          | 4.0              | 7        |              |       |
|                         |               |   |   |          | 5.0              | 8        |              |       |
|                         |               |   |   |          | 7.0              | 9        |              |       |
| 12A                     |               | 60022-12<br>60022-25<br>60022-50<br>60022-100 | brine line flow control assembly, 0.125 gpm<br>brine line flow control assembly, 0.250 gpm<br>brine line flow control assembly, 0.500 gpm<br>brine line flow control assembly, 1.00 gpm |          |                  |          |              |       |
| 128                     | 7             | 60350   | brine valve assembly  |          |                  |          |              |       |
| 13                      | 1             | 61420   | distributor adapter let, 1.05"  |          |                  |          |              |       |
| Not S<br>14<br>15<br>16 | ibowi         | 12763<br>13061<br>15759                       | seal and space stuffer tool spacer puller tool DLFC retainer tool   |          |                  |          |              |       |
| 1.0                     |               | 10102   | S. P. P. Ext. Style: 1244   |          |                  |          |              |       |

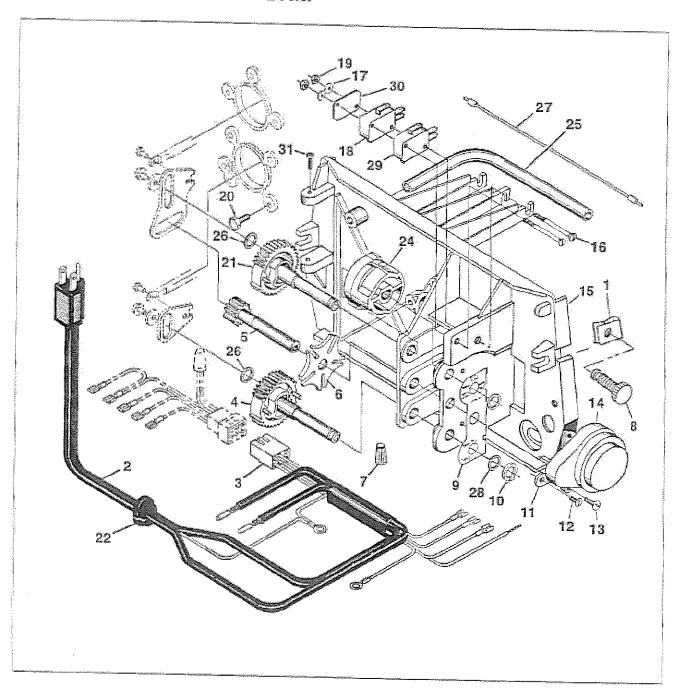
## 9000/9100/9500 Electro Mechanical Timer Assembly



## 9000/9100/9500 Electro Mechanical Timer Assembly

| llem | Quantity            | Part Number | Description                                       |
|------|---------------------|-------------|---|
| T    | *                   | 19870-03    | timer housing assembly.                           |
| 2.   | 1.                  | 17870       | label, capacity gallons                           |
| 3    | 1.                  | 15465       | label, Caution                                    |
| 4    | 1                   | 15930       | label, Instruction                                |
| 5    | 1                   | 15227       | actuator plate                                    |
| 6    | 1                   | 1030¢       | screw, hex washer #8                              |
| 7    | 1                   | 17519       | spring clip                                       |
| 8    | 1                   | 15407       | washer, plain #4                                  |
| 9    | 1                   | 15228       | spring  |
| 10   | *1                  | 16270-10    | gallon wheel assembly 3/4" standard range meter   |
|      |                     | 16270-50    | gallon wheel assembly 3/4" extended range meter   |
|      |                     | 16270-30    | gallon wheel assembly 1" standard range meter     |
|      |                     | 16270-40    | gallon wheel assembly "I" extended range meter    |
|      |                     | 16270-50    | gallon wheel assembly 1-1/2" standard range meter |
|      |                     | 16270-60    | gallon wheel assembly 1-1/2" extended range meter |
| 11   | 1                   | 13606       | program wheel retainer                            |
| 12   | 4                   | 13748       | screw, flathead #6-20                             |
| 13   | 2                   | 11999       | button decal                                      |
| 14   | *                   | 15223       | cycle actuator gear                               |
| 15   | i                   | 13886-01    | knob  |
| 16   | 4                   | 13296       | screw, hex washer #6-20                           |
| 17   | 1                   | 17724       | drīve pinios                                      |
| 18   | 1.                  | 17723       | drive pinson dutch                                |
| 19   | 4                   | 14276       | spring, meter clutch                              |
| 20   | *                   | 14253       | retainer  |
| 21   | 3                   | 14087       | insulator   |
| 22   | - Grand-            | 15314       | switch  |
| 23   | - Huco              | 15320       | switch  |
| 24   | 2                   | 11413       | screw, pan head #4-40                             |
| 25   | , Konse             | 13018       | idler shaft                                       |
| 26   | i,                  | 18563       | spring, idler shelt                               |
| 27   | Will see the second | 13017       | ider gear   |
| 26   | 1                   | 13164       | drive gear  |
| 29   | 4                   | 13887       | motor mounting plate                              |
| 30   | ä                   | 18743       | motor, 120V 60 Hz,-1/30 RPM                       |
|      |                     | 18824       | motor, 220V 50 Hz,-1/30 RPM                       |
|      |                     | 19170       | mater, 120V 60 Hz1/15 RPM                         |
|      |                     | 18825       | motor, 220V 50 Hz,-1/15 RPM                       |
| 31   | 2                   | 13278       | screw. #6-32                                      |
| 32   | 1                   | 14265       | spring clip                                       |
| 33   | 7                   | 15055       | main drive gear                                   |
| 34   | 1                   | 19210-02    | program wheel, 90 minute                          |
|      |                     | 19210-05    | program wheel, 180 minute                         |
| 35   | 23                  | 15499       | roll pis  |
| 36   | 1                   | 15203       | hamess  |
| 37   | 2                   | 12681       | wire nut  |
| 38   | 4                   | 60320-02    | auxiliery timer switch kit (not shown)            |

## 9000/9100/9500 Power Head

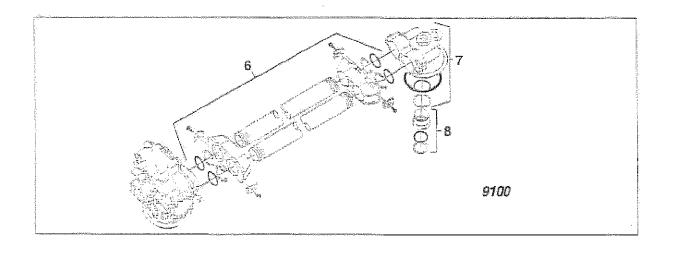


## 9000/9100/9500 Power Head

| 1 2 3 4 5 5 7 6 9 10 1 12 3 4 15 16 7 8 9 10 1 12 3 4 15 16 7 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10   | 20 1 1 1 1 2 2 2 to the gas of th | 18728<br>11838<br>11839<br>40084-12<br>11545-01<br>14678<br>19303-01<br>40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737 | mul, clip #8-32 power cord, 6' U.S. 120V power cord, 12' U.S. 120V (ET) power cord, 12' U.S. 120V (ET) power cord, 5' European 220V power cord, 6' U.S. 220V power cord, Australian 8' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
|--|--|---|--|
| 3 4 5 5 7 8 9 10 1 1 2 3 1 4 1 5 1 5 1 5 1 7 8 1 9   | 1 1 1 1 2 2 2 3 per year 22 per year 24 per year   | 11839<br>40084-12<br>11545-01<br>14678<br>19303-01<br>40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737                   | power cord, 12' U.S. 120V (ET) power cord, 5' European 220V power cord, 6' U.S. 220V power cord, 6' U.S. 220V power cord, Australian 8' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 4<br>5<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 40084-12<br>11545-01<br>14678<br>19303-01<br>40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737                            | power cord, 12' U.S. 120V (ET) power cord, 5' European 220V power cord, Australian 5' 220V power cord, Australian 5' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 4<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                     | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 11545-01<br>14678<br>19303-01<br>40085-12<br>19651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | power cord, 12' U.S. 120V (ET) power cord, 5' European 220V power cord, Australian 5' 220V power cord, Australian 5' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 4<br>5<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 14678<br>19303-01<br>40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737  | power cord, 5' European 220V power cord, 6' U.S. 220V power cord, Australian 8' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 19303-01<br>40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | power cord, 6' U.S. 220V power cord, Australian 5' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | power cord, Australian 8' 220V power cord, 12' U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness; mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 40085-12<br>19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | power cord, 12" U.S. 220V (ET) transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness, mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 19674<br>25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | transformer, U.S., 110V to 24V transformer, European, 220V to 24V wire harness; mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 4<br>5<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 25651<br>15202<br>14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737  | transformer, European, 220V to 24V wire harness; mechanical wire harness suxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 4<br>5<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 15202<br>14822<br>40041-06<br>15134<br>15135<br>14886<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | wire harness; mechanical wire harness auxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 4<br>5<br>5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                | 1 1 1 2 2 2 1 2 1 2 1 2 1 2 1 1 1  | 14822<br>40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737  | wire harness suxiliary drive switch wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector cover screw position decal retaining ring ground plate screw, hex washer #6  |
| 5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                          | 1 1 2 2 to 2 to 40 2 to 40 to 40   | 40041-06<br>15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | wire harness, low voltage (ET) drive gear assembly, lower drive gear assembly geneva wheel wire connector criver screw position decal retaining ring ground plate screw, hex washer #6   |
| 5<br>5<br>7<br>7<br>8<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9 | 1 1 2 2 to 2 to 40 2 to 40 to 40   | 15134<br>15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | drive gear assembly, lower drive gear assembly geneva wheel wire connector criver screw position decal retaining ring ground plate screw, hex washer #6  |
| 5<br>5<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19                          | 1 1 2 2 to 2 to 40 2 to 40 to 40   | 15135<br>14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737  | drive gear assembly geneva wheel Wire connector opver screw position decal retaining ring ground plate screw, hex washer #6  |
| 5<br>7<br>8<br>8<br>9<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18                           | T & 20 th the St per year St see she she   | 14896<br>40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | geneva wheel  Wire connector  Otiver screw:  position decal  retaining ring  ground plate  screw, hex washer #6  |
| 7<br>8<br>9<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18                                     | Set with we the met of the the SE All  | 40422<br>19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737  | wire connector cover screw position decal retaining ring ground plate screw, hex washer #6   |
| 8<br>9<br>10<br>11<br>11<br>12<br>13<br>14<br>15   | and rule was PO and and PO met. D.   | 19367<br>15175<br>14917<br>15199<br>14430<br>19160<br>18737   | cover screwing position decal retaining ring ground plate screw, hex washer #6   |
| 9<br>10<br>11<br>13<br>13<br>14<br>15  | and rush was PO and and RO media.  | 15175<br>14917<br>15199<br>14430<br>19160<br>18737  | position decal<br>retaining ring<br>ground plate<br>screw, hex washer #6   |
| 10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18   | and well than 1970 and well 1980.  | 14917<br>15199<br>14430<br>19160<br>18737   | retaining ring<br>ground plate<br>screw, hex washer #6   |
| 11<br>12<br>13<br>14<br>15<br>16<br>17<br>18   | and well was PO and and  | 15199<br>14430<br>19160<br>18737  | ground plate<br>screw, hex washer #6   |
| 12<br>13<br>14<br>15<br>16<br>17<br>18   | auch wells warth [172] annek.  | 14430<br>19160<br>18737   | screw, hex washer #6   |
| 13<br>14<br>15<br>16<br>17<br>18   | See well was \$500   | 19160<br>18737  |  |
| 14<br>15<br>16<br>17<br>18   | was span was   | 18737   | and a survey of the contract o |
| 15<br>16<br>17<br>18   | down reals   |   | screw, motor mounting  |
| 16<br>17<br>18   | *  |   | drive mater, 24V, 50/60 Hz (red wires)   |
| 16<br>17<br>18   |  | 18738   | drive motor, 120V, 60 Hz (black wires)   |
| 16<br>17<br>18   |  | 18739   | drive motor, 220V, 50 Hz (yellow wires)  |
| 17<br>18<br>19   | 1  | 15131   | backplate, mechanical and SE   |
| 17<br>18<br>19   |  | 17764-05  | backplate, ET  |
| 17<br>18<br>19   |  | 17764-06  | backplate, ET  |
| 17<br>18<br>19   | 2  | 15172   | screw, flat head #4-40   |
| 18<br>19   | 2  | 10340   | washer, lock #4  |
| S  | _  | 10218   | micro switch (homing)  |
|  | 1.   | 10339   | nut, micro switch  |
|  | 1  | 15331   |  |
| 21   | 2  |   | screw, valve mounting  |
| 22   |  | 15139   | drive pear assembly, upper   |
|  | *  | 13547   | strain relief  |
| 23   | - south  | 15810   | retaining ring, drive gear   |
| 24   | *  | 15132   | triple cam (9000/9100)   |
|  |  | 17331   | triple carri (9500)  |
|  |  | 17755   | triple cam (9500 auxiliary switch)   |
| 25   | 1  | 15638   | cable guide (9000/9100)  |
|  | 4.   | 17337   | cable guide ( <i>9500</i> )  |
| 15   | 2  | 15372   | washer, thrust   |
| 27   | 1  | 15216   | mater cable, 15.25*, 1* meter, mechanical  |
|  |  | 15425   | moter cable, 13,25°, 3/4° meter, mechanical  |
|  |  | 17744   | meter cable, 20,75", 1-1/2" meter, mechanical  |
|  |  | 19121-01  | meter cable, 1" meter, SE  |
|  |  | 19121-05  | meter cable, 3/4" and 1" meter. ET   |
|  |  | 19791-01  | meter cable, 1° meter, SE  |
| 28   | 2  | 15692   | Spacet   |
| 29   | 1  | 16433   | micro switch (program)   |
| 30   | 1  | 10302   | kanjajut<br>mana amini duritajini  |
| H  | 2  | 15173   |  |
| vot She  |  | 1 62 1 7 62   |  |
| voi onii<br>32   | ow.  | 20000 4+4   | property carrier Section and Section and Section 2   |
| 3 <del>4j</del>  | 4  | 60232-110   | cover, black   |
| 13   | 4  | 60232-112   | dover, black - left window   |
| # <del>2</del> 2   |  | 60220-09  | optional auxiliary drive awitch (9000/9100)  |
|  | 1  | 60320-10  | optional auxiliary drive switch (9500)   |

### 9000/9100/9500 Second Tank Assemblies

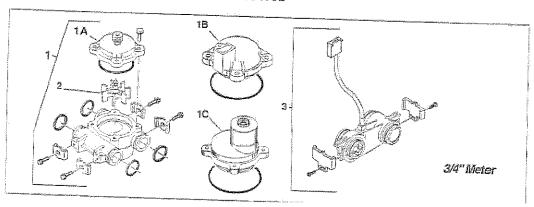
| item | Quantity                               | Part Number         | Description   |
|------|--|---------------------|---|
|      | ************************************** |                     | 9000 second tank assembly   |
| 1    | 4                                      | 14202               | screw, hex head #8-32   |
| 2    | 4                                      | 15255               | dip, hold-cown  |
| 3    | 4.                                     | 15078-01            | obupling assembly. 9000   |
| 4    | 1                                      | 14864-01            | second tank adapter assembly, 9000  |
|      |  | 14864-01NP          | second tank adapter assembly, 9000, rickel-plated   |
| 5    | 1                                      | 15823-06            | yoke assembly 6" tanks, 6" tubes  |
|      |  | 15825-06NP          | yoke assembly 6" tanks, 6" tubes, rackel-plated   |
|      |  | 15823-12            | yoke assembly 12" tanks, 8-1/2" tubes   |
|      |  | 15823-12NP          | yoke assembly 12° tanks, 6-1/2° tubes, nickel-piated  |
|      |  | 15823-14            | yoke assembly 14" tunks, 10-1/2" tubes  |
|      |  | 1582S-14NP          | yoke assembly 14" tanks, 10-1/2" tubes, nickel-plated   |
|      |  | 15823-16            | yoke assembly 16" tanks, 12-1/2" tubes  |
|      |  | 15823-16NP          | yoke assembly 16" tanks, 12-1/2" tubes, nickel-plated   |
|      |  |                     | 9100 second tank assembly   |
| 8    | 1                                      | 60421-12            | plastic tube assembly, 9100 up to 12" tanks   |
|      |  | 60427-16            | plastic tube assembly, 9100, up to 16" tanks  |
| 7    | †                                      | 14865               | second tank adapter assembly, 9100  |
| 8    | 1                                      | 61420               | distributors adapter kit, 9100, 1.05°   |
|      |  |                     | 8500 second tank assembly   |
| 9    | 1                                      | 16919-01            | second tank adapter assembly, \$500   |
|      |  | 16919-01 <b>N</b> P | second tank adapter assembly, 9500, nickel-plated   |
|      |  | 16919-21            | second tank adopter assembly, 9500, BSP/Metric  |
|      |  | 16919-21MP          | second tank adapter assembly, 9500, BSP/Metric, nickel-plated   |
| *0   | †                                      | 60715-16            | tube assembly 16" tanks   |
|      |  | 60715-16NP          | tube assembly 16" tanks, nickel-plated  |
|      |  | 60715-20            | tube assembly 20" tanks   |
|      |  | 60715-20NP          | tube assembly 20" tanks, nickel-plated  |
|      |  | 60715-24            | tube assembly 24" tanks   |
|      |  | 60715-24NP          | tube assembly 24" tanks, nickel-plated  |
|      |  |                     | Security of the second of the |



## 9000/9100/9500 Meter Assemblies

| ltem    | Quantity                              | Part Number  | Description  |
|---------|---------------------------------------|--|--|
|         | · · · · · · · · · · · · · · · · · · · | ter de de la destación de la companya de la company | SOOD WELLT ESSEMBLY  |
| 1.      | 1                                     | 60086  | 3/4" mater assembly, exanderd range                                  |
|         |                                       | E0086-50   | 3/4" meter assembly, electronic (ET)                                 |
|         |                                       | 60057  | 3/4" metar assembly, extended range                                  |
| īΑ      | ₹.                                    | 34038  | meter dap assembly, standart range                                   |
| 18      |                                       | 7471.6   | meter cap assembly, electronic (ET)                                  |
| 1C      |                                       | 15150  | mater cap assembly, extended range                                   |
| 1D      | 4                                     | 15218  | meter cap assembly, brass standard range                             |
| 16      |                                       | 15216NP  | meter cap assembly, brass nickel-plated standard range               |
| 2       | 1                                     | 13509  | published.   |
|         |                                       | 13509-01   | impelier, not water  |
| 3       | ₹.                                    | 19797  | 3/4" turbins meter assumbly, less clips and screws                   |
|         |                                       | 60626  | 3.4" turbine meter assembly with cops, screws, meter cable           |
|         |                                       | 60626-01   | 34° turbine meter assembly, with dips and screws                     |
| 4       | 1                                     | 60389  | 1" meser assembly, standard range                                    |
|         |                                       | 60389NP  | t' meter assembly, standard range                                    |
|         | 1                                     | 60389-20   | 1' meter assembly, standard range, BSP                               |
|         |                                       | 60390  | 1' maler assembly, extended range                                    |
|         |                                       | 6C39ONP  | t' maler assembly, extended range, nickel-plotted                    |
|         |                                       | 60390-20   | 1' meter assembly, extended range, BSP                               |
|         |                                       | 60612  | t' meter assembly, standard range, hot water                         |
|         |                                       | 6-622  | 1" meier assembly, electronic  |
| 4A.     | 1.                                    | 150788   | 1" adaster couping   |
| 5       | ń.                                    | 60610-01   | 1-1/2° meter assembly, standard range                                |
|         |                                       | 9M10-01NP  | 1-1/2" meter assembly, standard range; nickel-plated                 |
|         |                                       | 60610-02   | 1-1/2" mister assembly, extended range                               |
|         |                                       | 60610-02NF   | 1-1/2" meter assembly, extended range, nickel-plated                 |
|         |                                       | 60610-21   | 1-1/2" meter assembly, standard range, BSP                           |
|         |                                       | 60610-21NP   | 1-1/2" meter assembly, standard range, BSP, nickel-plated            |
|         |                                       | 60610-22   | 1-1/2" meter assembly, extended range, BSP                           |
|         |                                       | 60610-22NP   | 1-1/2" meter assembly, extended range, BSP, nickel-plated            |
|         |                                       | 60611-01   | 1-1/2" meter assembly, standard range, with 1" sleeve                |
|         |                                       | 60611-01NP   | 1-1/2 meter assembly, standard range, with 1" sleeve, nickel-plated  |
|         |                                       | 60611-02   | 1-1/2" meter assembly, extended range, with 1" sleeve                |
|         |                                       | 60611-02NP   | 1-1/2" meter assembly, extended range, with 1" sleeve, nicket-plated |
| Vot Sho | WAT?                                  |  |  |
| 3*      |                                       | 17790  | 1-1/2° meter sleeve reduced to 1°                                    |
| 7       |                                       | 60460  |  |
| 3       |                                       | 60461  | meter checker kli, standard range                                    |
| -       |                                       | UN14581  | mater chacker kit, extended range                                    |

## 9000/9100/9500 Meter Assemblies





#### **QUALITY WATER TREATMENT SYSTEMS**

#### LIMITED WARRANTY

This LIMITED WARRANTY applies to original purchasers of water conditioners and filters ("Unit" or "Units") distributed by the Milby Company. The Units are made from the finest materials available and are warranted for the periods shown below so long as the Units are operated in conformity with the specified Physical Properties and only in residential applications.

Any component part of a purchased Unit identified in the attached Warranty Registration Card by model and serial number that is installed by a licensed contractor according to the applicable installation manual and local plumbing and electrical codes will be repaired or replaced, at Milby's option, if a failure occurs due to defective material or workmanship. Any accident to the Unit, misuse, abuse or alteration of the Unit, or any unauthorized attempt to repair the Unit will void this warranty. Modifications or repairs by anyone other than an authorized Milby dealer are not covered by this warranty.

| PHYSICAL PROPERTIES |                        |  |  |  |
|---------------------|------------------------|--|--|--|
| Max. Pressure       | 75 PSI                 |  |  |  |
| Max. Temperature    | 100 Degrees Fahrenheit |  |  |  |
| Min. Temperature    | 32 Degrees Fahrenheit  |  |  |  |

| COMPONENT PART  | WARRANTY PERIOD               |
|---|-------------------------------|
| Media Tank  | 10 yrs. From Date of Purchase |
| Salt Storage Tank   | 5 yrs From Date of Purchase   |
| Control Valve   | 3 yrs From Date of Purchase   |
| Media Performance due to<br>misapplication, faulty installation, or<br>clogging | None                          |

Under this warranty, Milby will only repair or replace a Unit or component part with an identical or similar Unit or component part distributed by Milby. A replacement Unit or component part shall be warranted only for the remainder of the warranty period of the original purchased Unit or part. The purchaser is responsible for all other costs, including, but not limited to (1) labor charges for service, removal, repair or reinstallation of the Unit or component part, (2) shipping, delivery, handling and administrative charges for necessary or incidental costs for any materials required for installation of the replacement Unit or component parts.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHATSOEVER WITH RESPECT TO THE INSTALLATION, OPERATION, REPAIR OR REPLACEMENT OF A UNIT AND/OR ITS COMPONENT PARTS THAT EXTEND BEYOND THE APPLICABLE LIMITED WARRANTY HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

UNDER NO CIRCUMSTANCES SHALL MILBY BE LIABLE TO THE PURCHASER OR ANY OTHER PERSON FOR WATER DAMAGE, LOSS OF USE OF THE UNIT, INCONVENIENCE, LOSS OR DAMAGE TO PERSONAL PROPERTY, OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, TORT, OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

To obtain coverage under this warranty, the consumer must complete and return the attached Warranty Registration Card within thirty (30) days from the date of purchase to Milby at: Attn: Customer Service, Milby Company, 6201 South Hanover Road, Elkridge, Maryland 21075-5651. Any claim under this warranty should be initiated with the dealer who sold the Unit to the purchaser. If this is not practicable, the purchaser should contact Milby directly at 410-796-7700.

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|------------|---|
|            | WARRANTY REGISTRATION CARD                  |
| 器          | Purchaser Name:                             |
| <u>133</u> | and Address                                 |
| 8          | Model # Date of Purchase:                   |
| 羅          | Dealer Name:                                |
| 2          | and Address                                 |
|            |   |

#### MILBY COMPANY 6201 South Hanover Road

Elkridge, MD 21075-5651

Phone: 410- 796-7700 Fax: 410- 796-7739