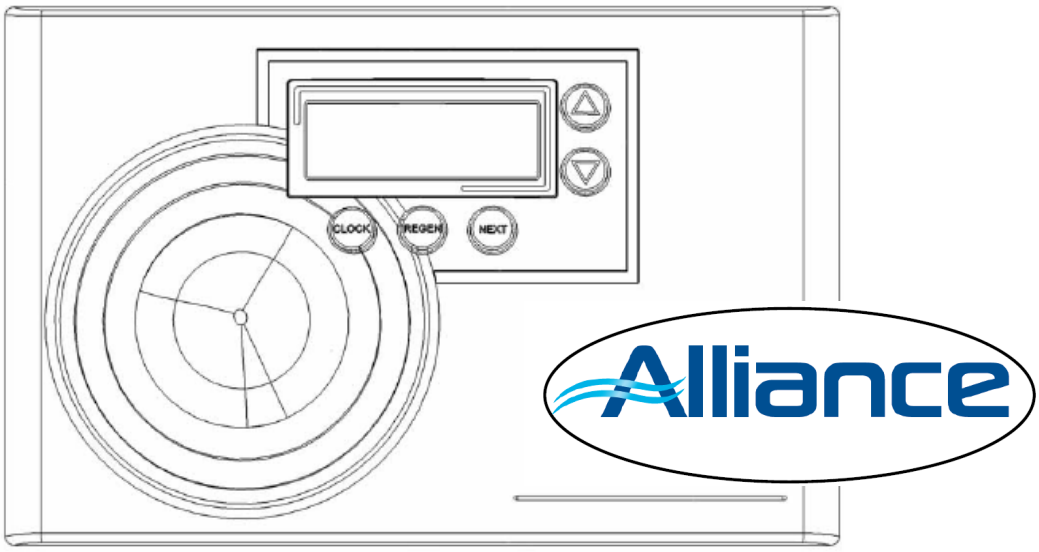
MASTER
Water Conditioning Corp.

# Installation and Operation Manual




# MP-MCA Alliance Series
# Combination Filter and Softener

2022 Version

# Table of Contents

***Installation and Operating Instructions for***
***Alliance Series Combination Systems***

***Model #:***

| | |
|---|---|
| _____ MP-CFES-20/30/40T | Birm Filter/Softener |
| _____ MP-CNS-20/30/40T | Neutralizer/Softener |
| _____ MP-CTS-20/30/40T | Activated Carbon/Softener |

***Shipping Carton Description:***

| Contents | Description |
|---|---|
| Mineral tank | Distributor pipe and softening resin installed |
| Brine tank | 464 shutoff valve assembly |
| Control valve | Control valve, bypass valve, and tailpiece kit |

***Filter Media is Packaged as Follows:***

| Model # | Media |
|---|---|
| MP-CFES-20T | ½ CF Birm |
| MP-CFES-30T | 1 CF Birm |
| MP-CFES-40T | 1 CF Birm |
| MP-CNS-20T | ½ CF NS Mix |
| MP-CNS-30T | ½ CF Calcite & ½ CF NS Mix |
| MP-CNS-40T | ½ CF Calcite & ½ CF NS Mix |
| MP-CTS-20T | ½ CF Activated Carbon |
| MP-CTS-30T | 1 CF Activated Carbon |
| MP-CTS-40T | 1 CF Activated Carbon |

**NOTE: This combination unit 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.**

## *System Description:*

The combination unit has a top mounted automatic control valve with an impulse meter to initiate regeneration. The valve is constructed of non-corrosive Noryl® material and is rated at a maximum working water pressure of 100 psi. It uses a microprocessor based timer in conjunction with an internal impulse meter to actuate regeneration in the following ways:

a. Microprocessor based water meter to initiate regeneration
b. Manual regeneration button to start an emergency regeneration
c. Calendar day override

**Note: This system 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.**

## *Combination Unit Positioning:*

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

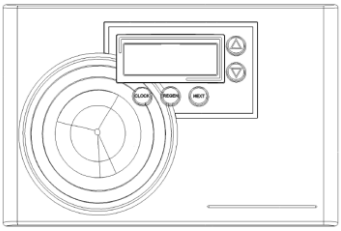
## *Combination Unit Tank Loading:*

1. Remove yellow caplug from top of tank. DO NOT CUT white riser tube. Tube was prefitted at the factory.
2. Center the distributor and make sure it is resting on the bottom of the tank. The top of the distributor pipe will be 5/8” above the top of the tank (this was prefitted at the factory).
3. Cover the top opening of the distributor pipe before filling the tank with media.
4. Pour all media provided with the unit into the top of the tank. See Table 1 for your specific model number of unit to determine the amount of media to load into the mineral tank.
5. Remove the material used to cover the top opening of the distributor pipe.

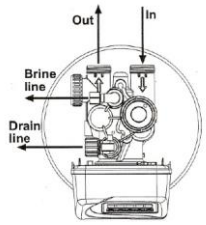
***Control Valve:***

1. When facing the front of the MP-MCA timer, the inlet connection is located on the right and the outlet connection is on the left. The control valve's inlet and outlet connections are either 1” copper or PVC, equipped with split ring and nut.

Control Valve



Front View

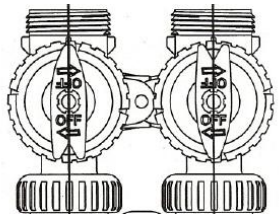



Top View

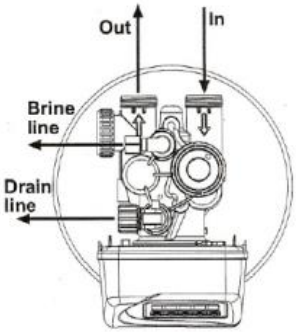
2. Turn the control valve upside down and ensure that the control valve distributor o’ring is in place. Use silicone lubricant on the o'ring.

# **DO NOT USE PETROLEUM!**
# **USE ONLY SILICONE **

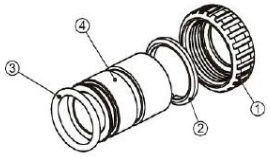
3. Place the control valve onto the distributor pipe and into the tank opening.
4. Thread the control valve hand tight . Do not overtighten.
5. Locate the bypass valve assembly that is packaged with the control valve. The bypass valve has two red handles that indicate flow direction, two threaded connections for the tail piece kit and two o’ring seal connections with nuts for the control valve. Align the insert connection ends with o’ring seals and nuts to the inlet and outlet connections of the control valve. Hand tighten the nuts. **DO NOT OVERTIGHTEN THE NUT!**




Bypass Valve




Control Valve

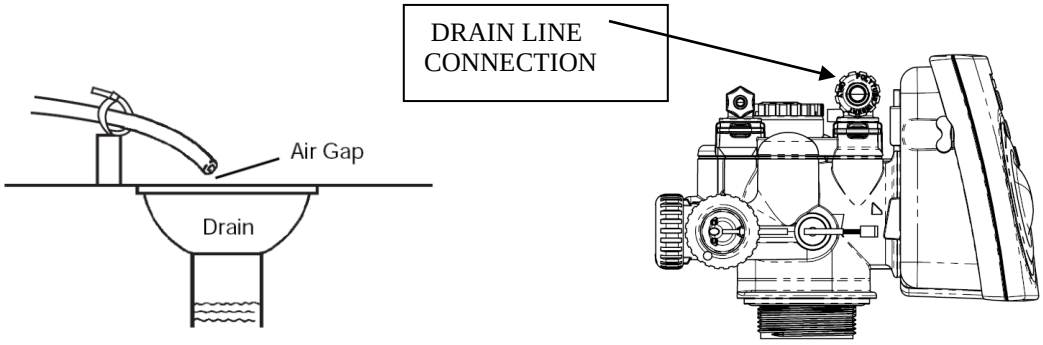



Tail piece assembly

6. Locate the tail piece kit that is packaged with the control valve. The standard tail piece kit is 1” copper with optional 1” PVC or 1” Shark Bite kits available as a special order. Each tail piece, o’ring, split ring and nut is presassembled at the factory. Align a tail piece assembly to the bypass valve threaded inlet and insert until the nut can be tightened. Hand tighten the nut because excessive tightening will damage the assembly. **REPEAT THE PROCEDURE FOR THE OUTLET CONNECTION.**

***Service and Drain Piping:***

1. Pipe water combination unit into the service lines .The inlet and outlet connections of the control valve are 1” copper or PVC and are located on the back of the valve body. As you face the timer the inlet is on the right and the outlet is on the left. Always follow local plumbing codes when installing our water treatment equipment.
2. If sweat fittings are used, be sure soldering is done in such a manner as not to allow heat to reach the control valve or bypass. (If Schedule 80 PVC is used make sure to follow the proper primer and solvent instructions.)
3. The drain line connection is 5/8” OD or ¾” npt and is located on the top left of the valve as you face the timer. It is recommended you install a ¾” union on the drain line for servicing if not using 5/8” OD. The drain line must be of adequate size to allow for full regeneration flow.




- The control valve drain connection is 3/4" npt.
- Never decrease the drain piping size to below the drain connection size.

- Maximum drain line length is 30 feet with proper sloping the entire length.
- Maximum drain line height is 6 feet above the control valve.
- The drain line must be piped to an open air gap (See Figure on previous page)
- Always follow local plumbing codes.

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

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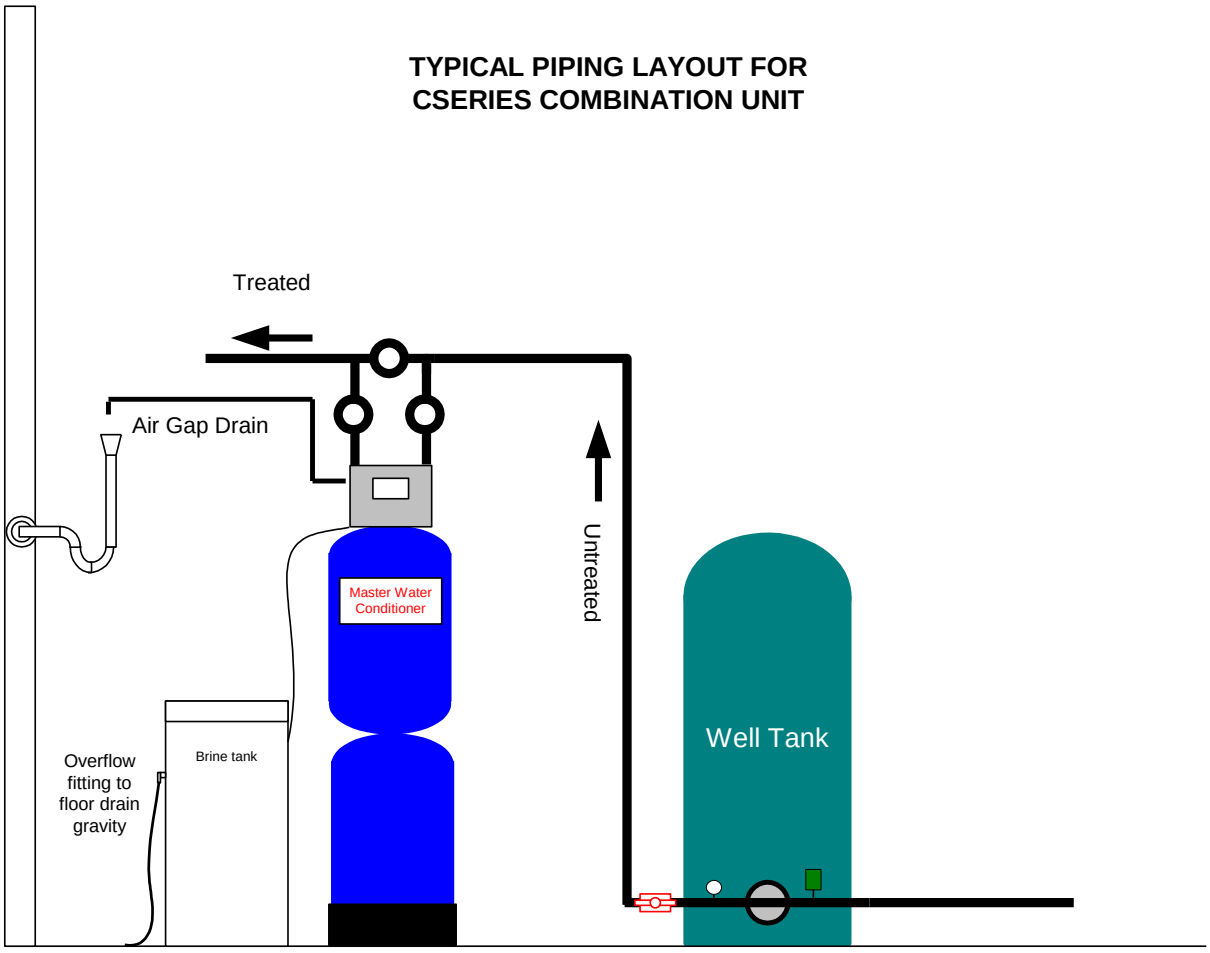
**TYPICAL PIPING LAYOUT FOR**
**CSERIES COMBINATION UNIT**




**NOTE:** *All Master Water Conditioners must be installed after the well tank or water meter if it is public water supply.*

## *Electrical* Requirements*:*

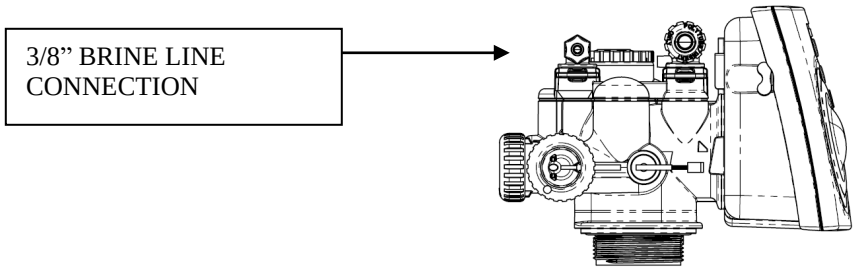
Always follow all local electrical codes when installing our water treatment equipment.

1. Provide an 115v/60Hz properly grounded, dedicated electrical outlet. (It's very important that the polarity be correct)
   **Avoid using outlets that are switch controlled.**
2. Maximum amperage required is 5 amps.
3. Make sure the electrical service provides power 24 hours per day. We recommend installing a **surge protector** to protect unit from power surges, which are not covered by warranty.

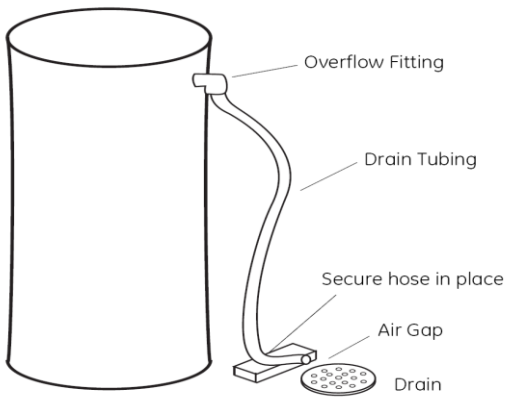
## *Brine Tank:*

1. The brine tank should be located directly beside the water combination unit mineral tank.
2. Connect the 3/8" poly tubing to the 3/8" black elbow quick-connect fitting located on the top left side of the MCA control valve.
3. Place 2 gallons of water directly into the brine tank.

**See Figure Below.**




**The brine tank is equipped with a shutoff valve, the float height was preset at the factory**.



***Filling Combination Unit with Water:***

1. Connect the MP-MCA control valve transformer into the electrical outlet provided.
2. Press and hold the REGEN button until the drive motor starts. When the drive motor stops, the display will read “BACKWASH” position.
3. Open the inlet ball valve a ¼ turn of its full open position to allow water to enter the water combination unit mineral tank slowly. The water is going to enter the tank from the bottom of the distributor pipe and leave the tank from the top. This will slowly purge all the air from the tank. **IF WATER ENTERS THE TANK TOO FAST, ALL THE CATION RESIN WILL BE FLUSHED TO DRAIN DURING START UP.**
4. When only water is running to the drain, open the inlet and outlet ball valves fully.
5. Press the REGEN button until the drive motor starts. When the drive motor stops, the display will read “BRINE” position.
6. Press the REGEN button until the drive motor starts. When the drive motor stops, the display will read “RINSE” position. The fast rinse position will rinse the combination unit tank.
7. The control valve will automatically advance to the brine refill position where the brine tank will fill with the proper amount of water. The display will read “FILL”.

**NOTE: THE TIMER WILL AUTOMATICALLY ADVANCE TO THE SERVICE POSITION AND THE DISPLAY WILL READ THE TIME OF DAY.**

***Control Valve Timer Settings****:*

**Note:** The control valve is set at the factory. You only need to set the time of day , hardness and regeneration time if required, which is preset at 2 am.

***Time of Day Setting***

1) Press the CLOCK button. The screen will show the Time of Day in blinking numbers.
2) To change the Hour, use the UP and DOWN arrows to set the Hour.
3) To change the Minutes, press CLOCK, use the UP and DOWN arrows to set the Minutes
4) Press the CLOCK button.

***Hardness Setting (the factory default is 10)***

1) Simultaneously press the NEXT and the UP arrow for 3 seconds. The screen will display “Hardness Setting” and the gpg of hardness will be blinking.
2) Remember to calculate the compensated hardness when programming. Compensated hardness= tested hardness plus 2.5 gpg of additional hardness estimated for every ppm of iron and 4.0 gpg of additional hardness estimated for every ppm of manganese.
3) To change the number, use the UP or DOWN arrows.
4) Press the NEXT button.

***Regeneration Day Override Setting (the factory default is off)***

5) The screen will show the Regeneration Day Override in blinking numbers.
6) To change the number, use the UP or DOWN arrows.
7) Press the NEXT button.

***Time of Regeneration Setting (the factory default is 2 AM)***

1) The screen will show the Time of Regeneration in blinking numbers.
2) If Regeneration time change is desired, use the UP and DOWN arrows to set the Hour.
3) To change the Minutes, press NEXT, use the UP and DOWN arrows to set the Minutes
4) Press the NEXT button.

**NOTE: SALT SETTING AND CAPACITY ARE PRESET AT THE FACTORY.**

***Final Check:***

1. Fill the brine tank with Solar Salt and the Res-Up Feeders with Res-Up (one quart is provided).
2. Make sure the drain line connection meets all plumbing codes and that the drain line size can handle the backwash flow rate of the combination unit.
3. Make sure the Inlet and Outlet on the bypass valve are open.
4. Make sure the control valve timer is plugged into an electrical outlet with power 24 hours per day.
5. Check all piping for leaks.

***Manual Regeneration:***

**Note: For combination units, if brine tank does not contain salt, fill with salt and wait at least 2 hours before regeneration.**

To initiate manual regeneration immediately, press and hold the “REGEN” button for three seconds. The system will begin to regenerate immediately. **The request cannot be cancelled.**

To initiate a manual regeneration at the preset delayed regeneration time, when the regeneration time option is set to “NORMAL” or “NORMAL + on 0”, press and release “REGEN”. The words “REGEN TODAY” will flash on the display to indicate that the system will regenerate at the preset delayed regeneration time. If you pressed “REGEN” in error, pressing the button again will cancel the request. **Note: If the regeneration time option is set to “on 0” there is no set delayed regeneration time so “REGEN TODAY” will not activate if “REGEN” button is pressed.**

**Power Loss**

If the power goes out for less than two hours, the system will automatically reset itself. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset. The system will remember the rest.

**Error Message**

If the word “ERROR” and a number are alternately flashing on the display, contact a service technician for help. This means the valve is unable to function properly.

# BYPASS VALVE OPERATION

Figure 1

## NORMAL OPERATION

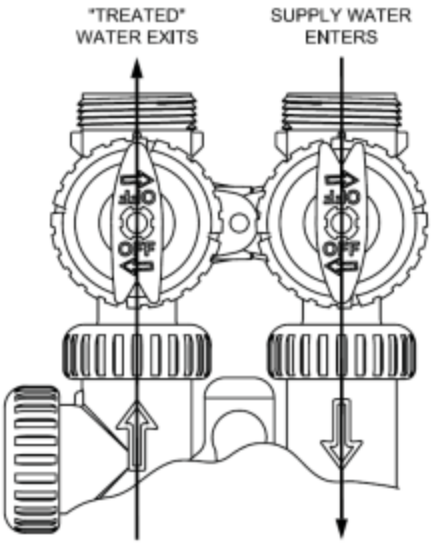



Figure 2

## BYPASS OPERATION

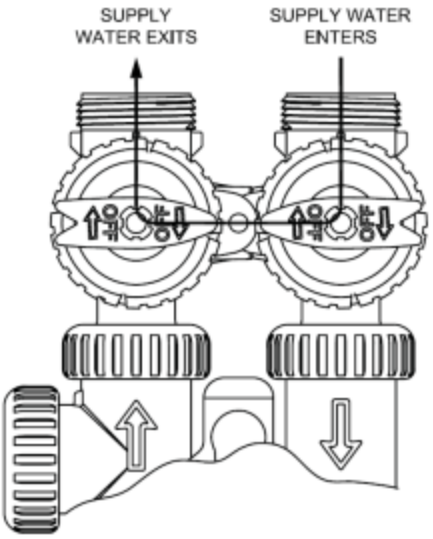



Figure 3

## DIAGNOSTIC MODE

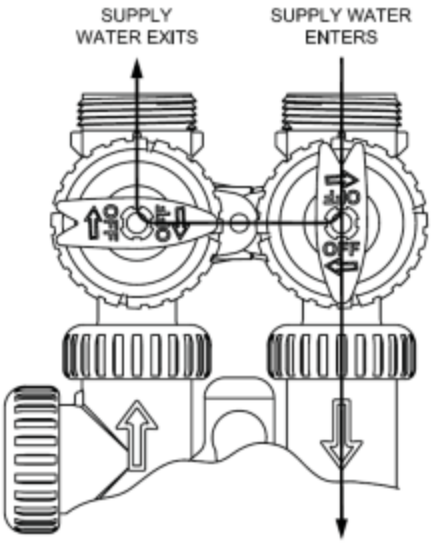
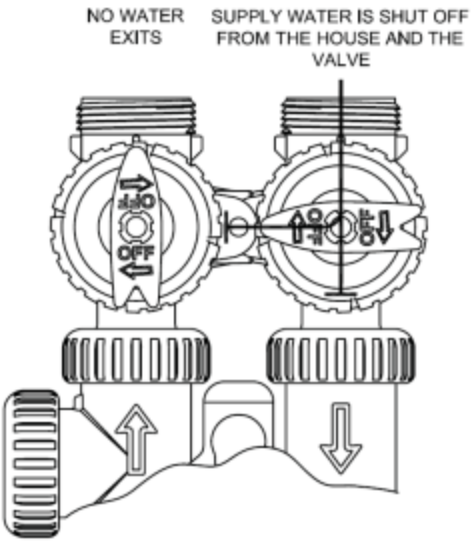



Figure 4

## SHUT OFF MODE



# Error Codes

## ERROR DESCRIPTIONS

(V3890MP-02 BOARD with 5800.0 Software)

| | |
|---|---|
| 101 | UNABLE TO START. Control not sensing valve movement with motor output energized. |
| 102 | #1 MAV/Stager #1 MOTOR STALLED. Unable to find proper park position. |
| 103 | #1 MAV/Stager #1 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 104 | #1 MAV/Stager #1 VALVE HOMING. Control unable to find the HOME position of the valve |
| 106 | #2 MAV/Stager #2 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 107 | #2 MAV/Stager #2 MOTOR STALLED. Unable to find proper park position. |
| 109 | INVALID MOTOR STATE Control can no longer operate due to the detection of an invalid motor state. |
| 116 | #3 MAV/Stager #3 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 117 | #3 MAV/Stager #3 MOTOR STALLED. Unable to find proper park position. |
| 126 | #4 MAV/Stager #4 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 127 | #4 MAV/Stager #4 MOTOR STALLED. Unable to find proper park position. |
| 201 | INVALID REGEN STEP Control can no longer operate due to the detection of an invalid regeneration cycle step (Internal software error) |
| 402 | POWER DOWN MEMORY Control can no longer operate due to a check sum error for the operational data and status section memory |
| 403 | PROGRAM MEMORY Control can no longer operate due to a check sum error for the programming section memory |
| 404 | DIAGNOSTIC MEMORY Control can no longer operate due to a check sum error for the diagnostic section memory |
| 405 | HISTORY MEMORY Control can no longer operate due to a check sum error for the history section memory |
| 406 | CONTACT MEMORY Control can no longer operate due to a check sum error for the contact screen section memory. |

| | |
|---|---|
| 407 | STATUS RAM MEMORY FAILURE Control can no longer operate due to corrupted data detected in the operational and status section. Once generated the error mode is not entered nor an error display viewed. Instead previous (<6 hours) data is used |
| 408 | DIAGNOSTIC RAM MEMORY FAILURE Control can no longer operate due to corrupted data detected in the diagnostic section. Once generated, the error mode is not entered nor an error display viewed. Instead previous (<6 hours) data is used. |
| 410 | CONFIG DOWNLOAD Configurator file downpoaded to the control was not originally uploaded from another control with the identical software. |

# Troubleshooting

**Problem:** Water conditioner fails to regenerate. No soft water.

| Possible Cause | Solution |
|---|---|
| Power supply to MP-MCA control has been interrupted. | Determine reason for power interruption and correct. Reset time of day. |
| Water pressure lost. | Restore water pressure. |
| Corrupted programming of MP-MCA timer. | Reprogram timer assembly. |
| Defective MP-MCA timer. | Replace timer assembly. |
| No salt in brine tank. | Add salt and regenerate. |
| Manual bypass valve is open. | Close manual bypass valve. |
| Leak at riser pipe seal. | Insure that riser pipe is properly sealed at o'ring seal. Inspect pipe for cracks. |
| Insufficient brine. | Check brine float height and clean assembly if necessary. Check flow rate capabilities of safety float and air check assembly. |
| Plugged injector or injector screen. | Inspect and clean injector and/or injector screen. |

**Problem:** No Brine Draw

| Possible Cause | Solution |
|---|---|
| Plugged injector or injector screen. | Inspect and clean injector and/or injector screen. |
| Insufficient water pressure. | Increase water pressure above 25 psig (172kPa) minimum. |
| Corrupted programming of MP-MCA timer. | Reprogram timer assembly. |
| Defective MP-MCA timer. | Replace timer assembly. |
| Obstructed drain line. | Remove obstruction. |

**Problem:** Insufficient brine draw

| Possible Cause | Solution |
|---|---|
| Partially clogged injector or injector screen. | Inspect and clean injector and/or injector screen assembly. |
| Restricted flow rate in brine line. | Check flow rate capabilities of the safety float/aircheck assembly. |
| Insufficient water pressure. | Increase water pressure above 25 psig (172kPa) minimum. |
| Excessive back pressure on injector due to elevated drain line. | Reduce drain line elevation to height of valve. |
| Partially restricted drain line. | Remove restriction. |

**Problem:** Insufficient Refill to Brine Tank

| Possible Cause | Solution |
|---|---|
| Brine refill control | Remove and clean |
| Restricted flow rate in brine line. | Check flow rate capabilities of the safety float/aircheck assembly. |

**Problem:** Excessive Water in Brine Tank

| Possible Cause | Solution |
|---|---|
| Plugged drain line flow control. | Clean flow control. |
| Plugged injector and/or injector screen | Inspect and clean injector and/or screen. |

**Problem:** Loss of Media to Drain

| Possible Cause | Solution |
|---|---|
| No flow control installed in drain line. | Install drain line flow control. |

**Problem:** Leak to Drain

| Possible Cause | Solution |
|---|---|
| No flow control installed in drain line. | Install drain line flow control. |
| Insufficient water pressure. | Increase water pressure above 25 psig (172kPa) minimum. |

**Problem:** Loss of Water Pressure

| Possible Cause | Solution |
|---|---|
| Fouled resin bed due to iron accumulation. | Clean control valve and mineral bed with cleaner. |
| Slots in riser pipe or laterals are filled with resin fines. | Inspect and clean distributor pipe slots as needed. |

**Problem:** Salt in Water to Service after Regeneration

| Possible Cause | Solution |
|---|---|
| Injector is too small for system size. | Install correct injector |
| Brine draw time excessively long due to low water pressure. | Increase water pressure above 25 psig (172 kPa) minimum. |
| Restricted drain line. | Remove drain line restriction. |
| Insufficient rinse volume. | Increase slow rinse time, fast rinse time, or both. |
| Plugged injector and/or injector screen. | Inspect and clean injector and/or injector screen. |

**Problem:** Timer does not display time of day

| Possible Cause | Solution |
|---|---|
| AC Adapter unplugged | Connect power |
| No electric power at outlet | Repair outlet or use working outlet |
| Defective AC Adapter | Replace AC Adapter |
| Defective PC Board | Replace PC Board |

**Problem:** Timer does not display correct time of day

| Possible Cause | Solution |
|---|---|
| Switched outlet | Use uninterrupted outlet |
| Power Outage | Reset time of day |
| Defective PC Board | Replace PC Board |

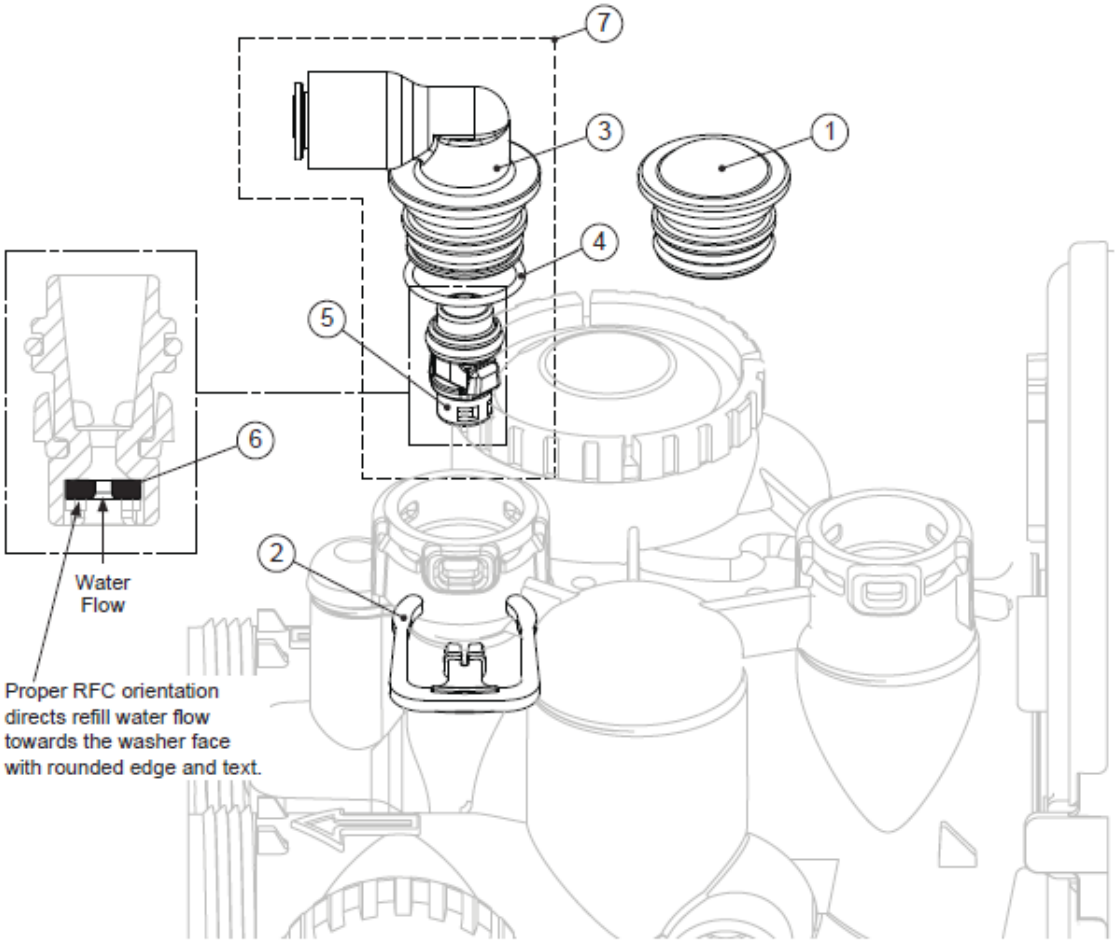
**Problem:** Control Valve regenerates at wrong time of day

| Possible Cause | Solution |
|---|---|
| Power Outages | Reset control valve to correct time of day |
| Time of day not set correctly | Reset to correct time of day |
| Time of regeneration incorrect | Reset regeneration time |

**Refill Flow Control Assembly and Refill Port Plug**

| Drawing No. | Order No. | Description | Quantity |
|---|---|---|---|
| 1 | V3195-01 | WS1 Refill Port Plug Asy | This part is required for backwash only systems |
| 2 | H4615 | Elbow Locking Clip | 1 |
| 3 | H4628 | Elbow 3/8" Liquifit | 1 |
| 4 | V3163 | 0-ring 019 | 1 |
| 5 | V3165-01* | WS1 RFC Retainer Asy (0.5 gpm) | 1 |
| 6 | V3182 | WS1 RFC | 1 |
| 7 | V4144-01 | Elbow 3/8 Liquifit Asy w/RFC | 1 |
| Not Shown | V3552 | WS1 Brine Elbow Asy w/RFC | Option |
| Not Shown | H4650 | Elbow ½" with nut and insert | Option |

*Assembly includes V3182 WS1 (0.5 gpm) RFC.

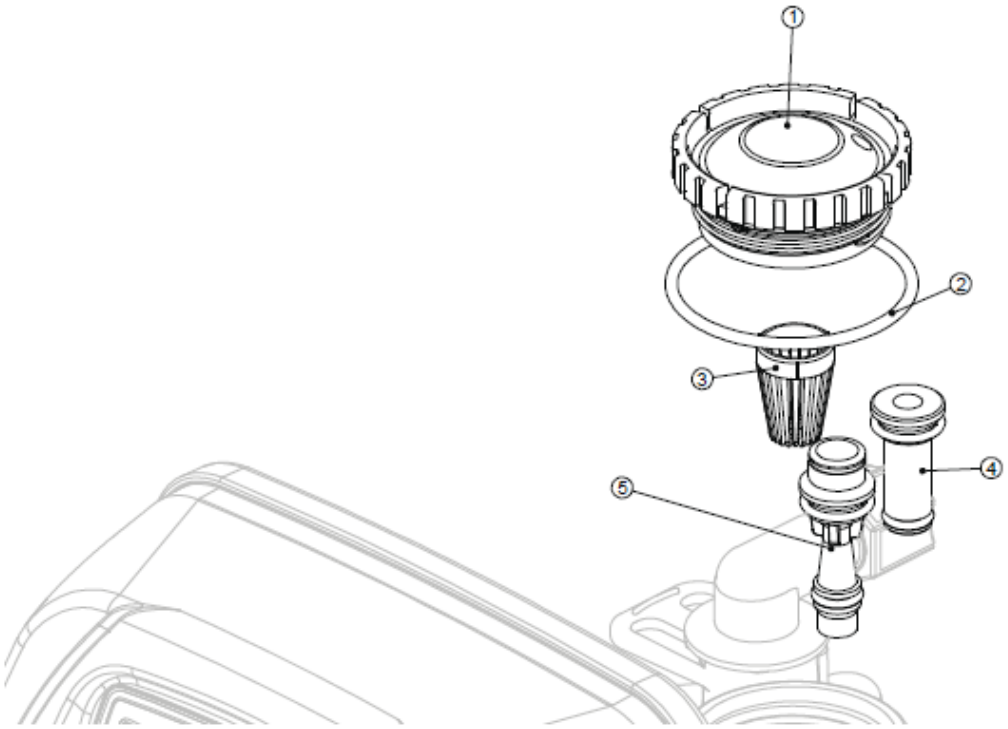


**Injector Cap, Injector Screen, Injector, Plug and O-Ring**

| Drawing No. | Order No. | Description | Quantity |
|---|---|---|---|
| 1 | V3176 | INJECTOR CAP | 1 |
| 2 | V3152 | O-RING 135 | 1 |
| 3 | V3177-01 | INJECTOR SCREEN CAGE | 1 |
| 4 | V3010-1Z | WS1 INJECTOR ASY Z PLUG | 1 |
| 5 | V3010-1A | WS1 INJECTOR ASY A BLACK | 1 |
| | V3010-1B | WS1 INJECTOR ASY B BROWN | |
| | V3010-1C | WS1 INJECTOR ASY C VIOLET | |
| | V3010-1D | WS1 INJECTOR ASY D RED | |
| | V3010-1E | WS1 INJECTOR ASY E WHITE | |
| | V3010-1F | WS1 INJECTOR ASY F BLUE | |
| | V3010-1G | WS1 INJECTOR ASY G YELLOW | |
| | V3010-1H | WS1 INJECTOR ASY H GREEN | |
| | V3010-1I | WS1 INJECTOR ASY I ORANGE | |
| | V3010-1J | WS1 INJECTOR ASY J LIGHT BLUE | |
| | V3010-1K | WS1 INJECTOR ASY K LIGHT GREEN | |
| Not Shown | V3170 | O-RING 011 | * |
| Not Shown | V3171 | O-RING 013 | * |

* The injector plug and the injector each contain one 011 (lower) and 013 (upper) o-ring.

Note: For upflow position, injector is located in the up hole and injector plug is in the other hole.
WS1 and WS1.25 upflow bodies are identified by having the DN marking removed.
Upflow option is not applicable to EE, EI, or TC control valves.
For a filter that only backwashes, injector plugs are located in both holes.



## MP Front Cover and Drive Assembly

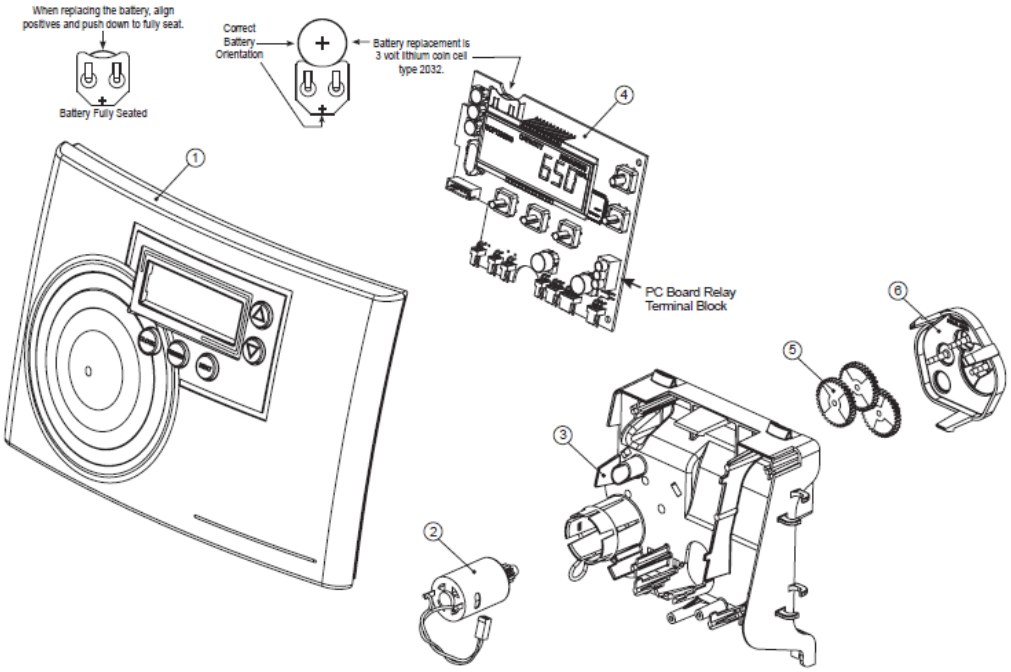
| Drawing No. | Order No. | Description | Quantity |
|---|---|---|---|
| 1 | V3371-01 | WS1MR FRONT COVER ASSEMBLY | 1 |
| 2 | V3107-01 | WS1 MOTOR | 1 |
| 3 | V3106-01 | WS1 DRIVE BRACKET & SPRING CLIP | 1 |
| 4 | V3890MP-02BOARD | WS1THRU2L/2 MP PCB XMEGA REPLACE | 1 |
| 5 | V3110 | WS1 DRIVE REDUCING GEAR 12X36 | 3 |
| 6 | V3109 | WS1 DRIVE GEAR COVER | 1 |
| NOT SHOWN | V3186 | WS1 AC ADAPTER 120V-12V | 1 |
| | V3186-01 | WS1 AC ADAPTER CORD ONLY | |
| NOT SHOWN | V3372 | WS1MR DRIVE BACK PLATE | 1 |
| NOT SHOWN | V3463 | WS1MR QUARTER TURN FASTENERS | 2 |
| NOT SHOWN | V3466 | O-RING 008 | 2 |

Refer to Control Valve Service Manual for other drawings and part numbers.

| AC Adapter | U.S. |
|---|---|
| Supply Voltage | 120 V AC |
| Supply Frequency | 60 Hz |
| Output Voltage | 12 V AC |
| Output Current | 500 mA |

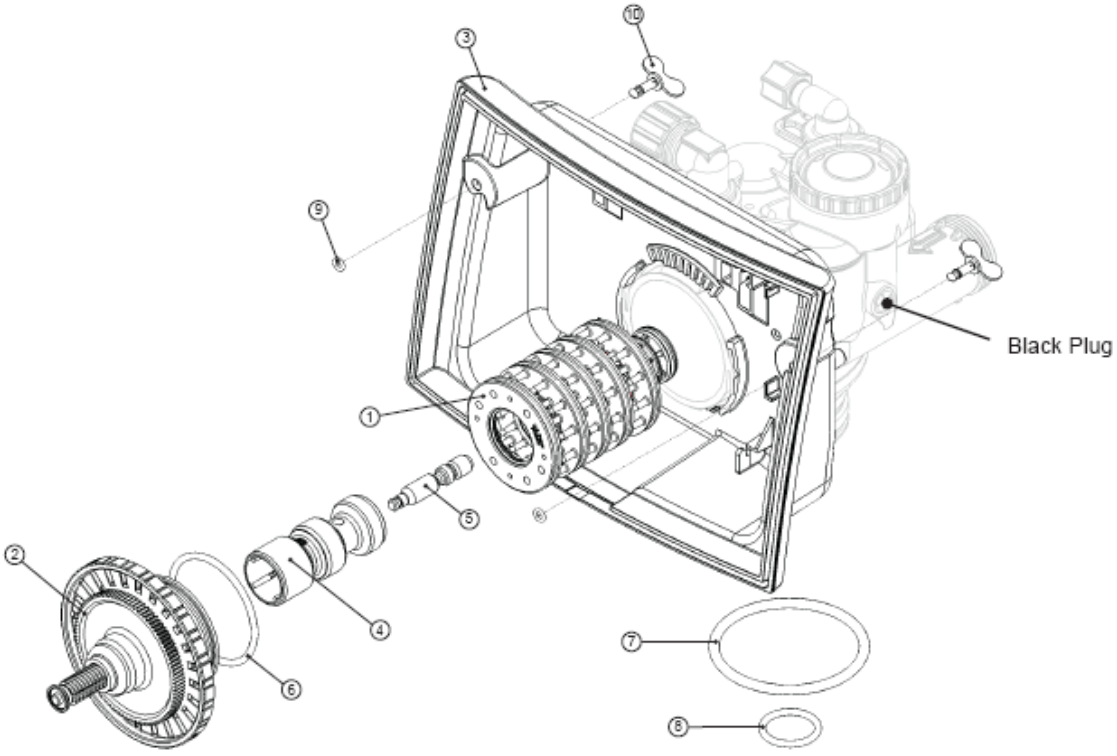
Relay Specifications: 12V DC Relay with a coil resistance not less than 80 ohms. If mounting the relay under the cover check for proper mounting location dimensions on the backplate.

| Wiring For Correct On/Off Operation | |
|---|---|
| PC Board Relay Terminal Block | Relay |
| RLY 1 | Coil - |
| V + | Coil + |
| RLY 2 | Coil - |



| Drawing No. | Order No. | Description | Quantity |
|---|---|---|---|
| 1 | V3005 | WS1 Spacer Stack Assembly | 1 |
| 2 | V3004 | Drive Cap ASY | 1 |
| 3 | V3372 | WS1MR Drive Back Plate | 1 |
| 4 | V3011 | WS1 Piston Downflow ASY | 1 |
| 5 | V3174 | WS1 Regenerant Piston | 1 |
| 6 | V3135 | O-ring 228 | 1 |
| 7 | V3180 | O-ring 337 | 1 |
| 8 | V3105 | O-ring 215 (Distributor Tube) | 1 |
| 9 | V3466 | O-ring 008 | 2 |
| 10 | V3463 | WS1MR Quarter Turn Fasteners | 2 |
| Not Shown | V3001 | WS1 Body ASY Downflow | 1 |
| | V3001-02 | WS1 Mixing Valve Body ASY | |
| | V3001UP | WS1 Body ASY Upflow | |
| | V3001-02UP | WS1 Mixing Valve Body Upflow ASY | |
| Not Shown | V3013 | WS1 Mixing Valve ASY | 1 |

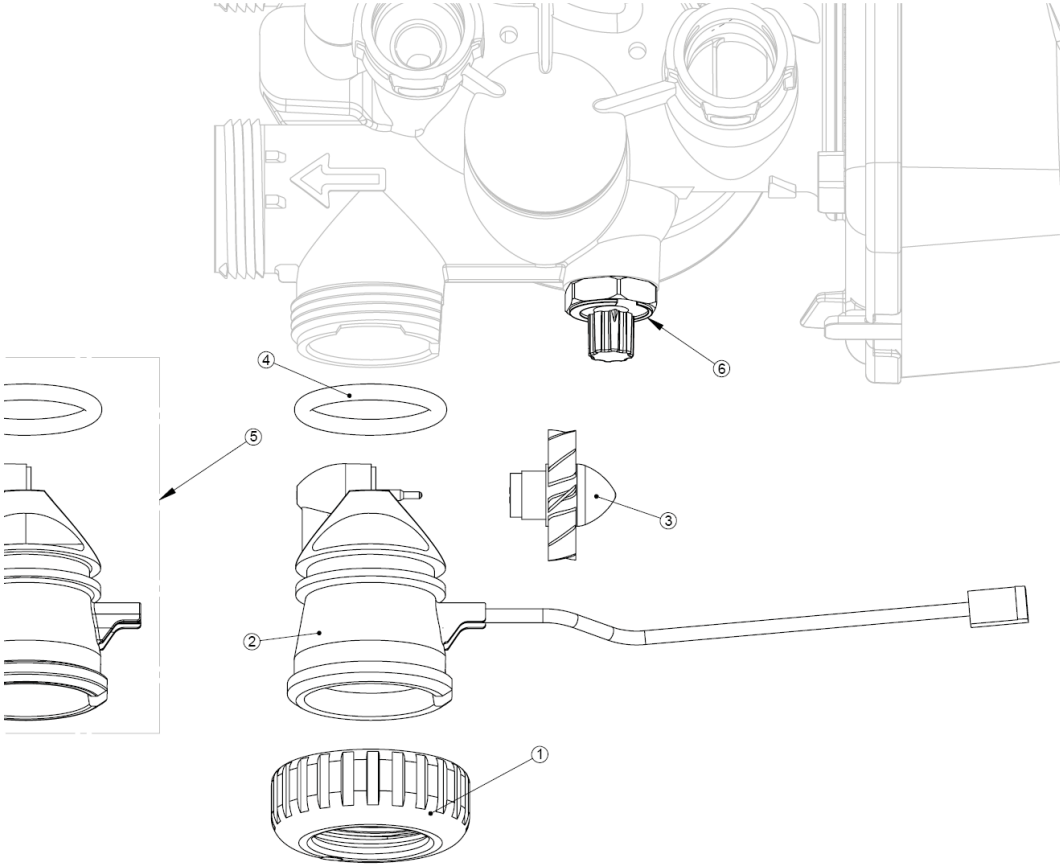
Note: The regenerant piston is not used in backwash only applications.



**Water Meter, Meter Plug and Mixing Valve**

| Drawing No. | Order No. | Description | Quantity |
|---|---|---|---|
| 1 | V3151 | WS1 Nut 1" QC | 1 |
| 2 | V3003* | WS1 Meter ASY | 1 |
| 3 | V3118-01 | WS1 Turbine ASY | 1 |
| 4 | V3105 | O-ring 215 | 1 |
| 5 | V3003-01 | WS1 Meter Plug ASY | 1 |
| 6 | V3013 | Mixing Valve | Optional |

* Order number V3003 includes V3118-01 WS1 Turbine Asy and V3105 O-ring 215.



# 12 YEAR LIMITED WARRANTY

As of November 2022

This Residential Water Conditioner is warranted for a period of **one year** from date of purchase by first user against defects in materials and workmanship. In addition, the complete control valve is warranted for **five years.** The control valve body (excluding internals and electrical parts) is warranted for **six years.** The mineral tank, plastic brine tank or cabinet tank (excluding mineral) is warranted against rust, corrosion or bursting for a period of **twelve years** from date of manufacture. Except, as specifically set forth in this paragraph, Master Water Conditioning Corporation makes no other warranties, express or implied.

This warranty shall be void if the conditioner is moved from the place of original installation, or if damage is caused by misuse, misapplication, accident, freezing, flood, fire or if not installed in accordance with instructions furnished by Master Water Conditioning Corporation.

This warranty shall be void in the event of damages from external sources or where the conditioner has been operated at pressure in excess of 100 pounds per square inch or at a temperature greater than 100 degrees F. or less than 32 degrees F. Incidental costs or consequential damages are not covered by this warranty.

All defective parts shall be returned prepaid to Master Water Conditioning Corporation for inspection. **Master shall not be liable for labor charges other than Master factory repairs**.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow limitations on duration of implied warranties or exclusion of incidental or consequential damages, so the above limitations may not apply to you.

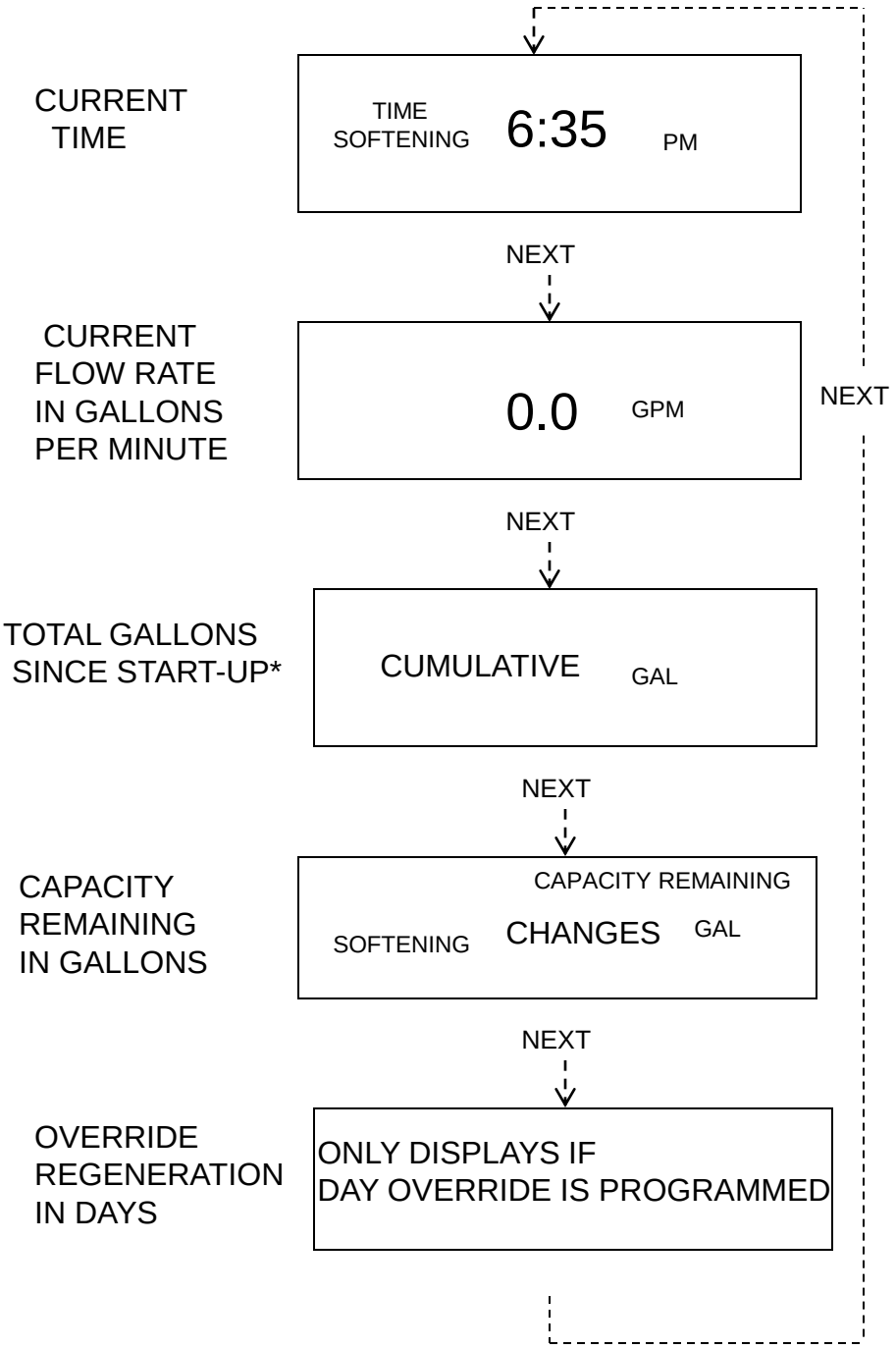
All claims must be submitted in writing to Master Water Conditioning Corporation at 224 Shoemaker Road, Pottstown, Pennsylvania 19464 within thirty (30) days from the discovery of the defect. Master Water Conditioning Corporation thereafter will correct defective parts and workmanship or rusting, corrosion or bursting within sixty (60) days.

MASTER
*Water Conditioning Corp.*

224 Shoemaker Rd. Pottstown, Pa. 19464

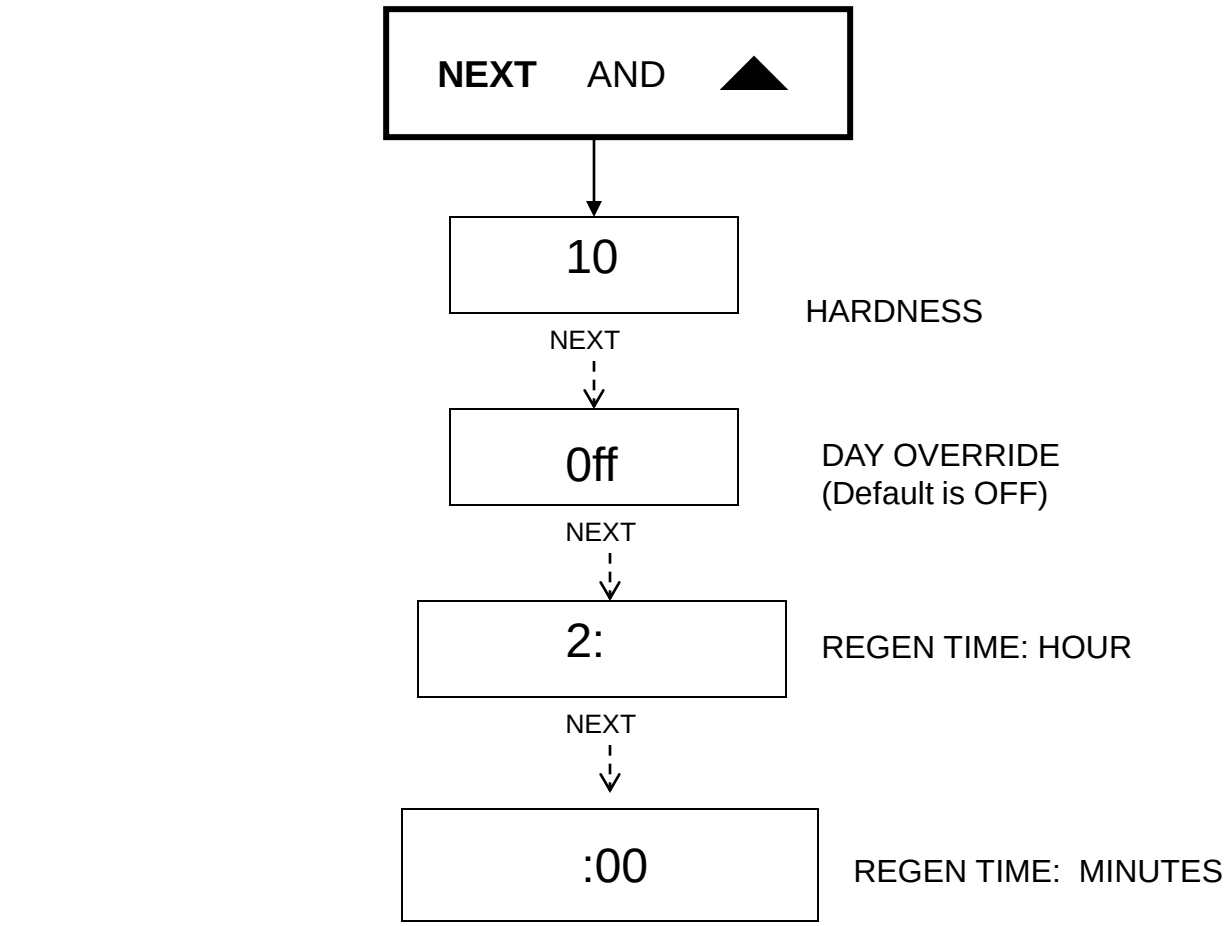
# MP-CXX-XX METERED COMBINATION UNITS

## NORMAL VIEW




*RESET TO “0” BY PRESSING “**CLOCK**” AND “**REGEN**” FOR 3 SECONDS

# INSTALLER SETTINGS

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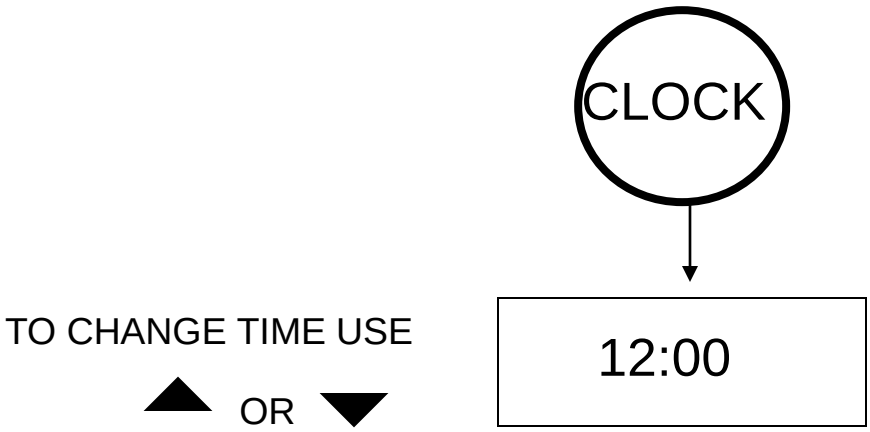
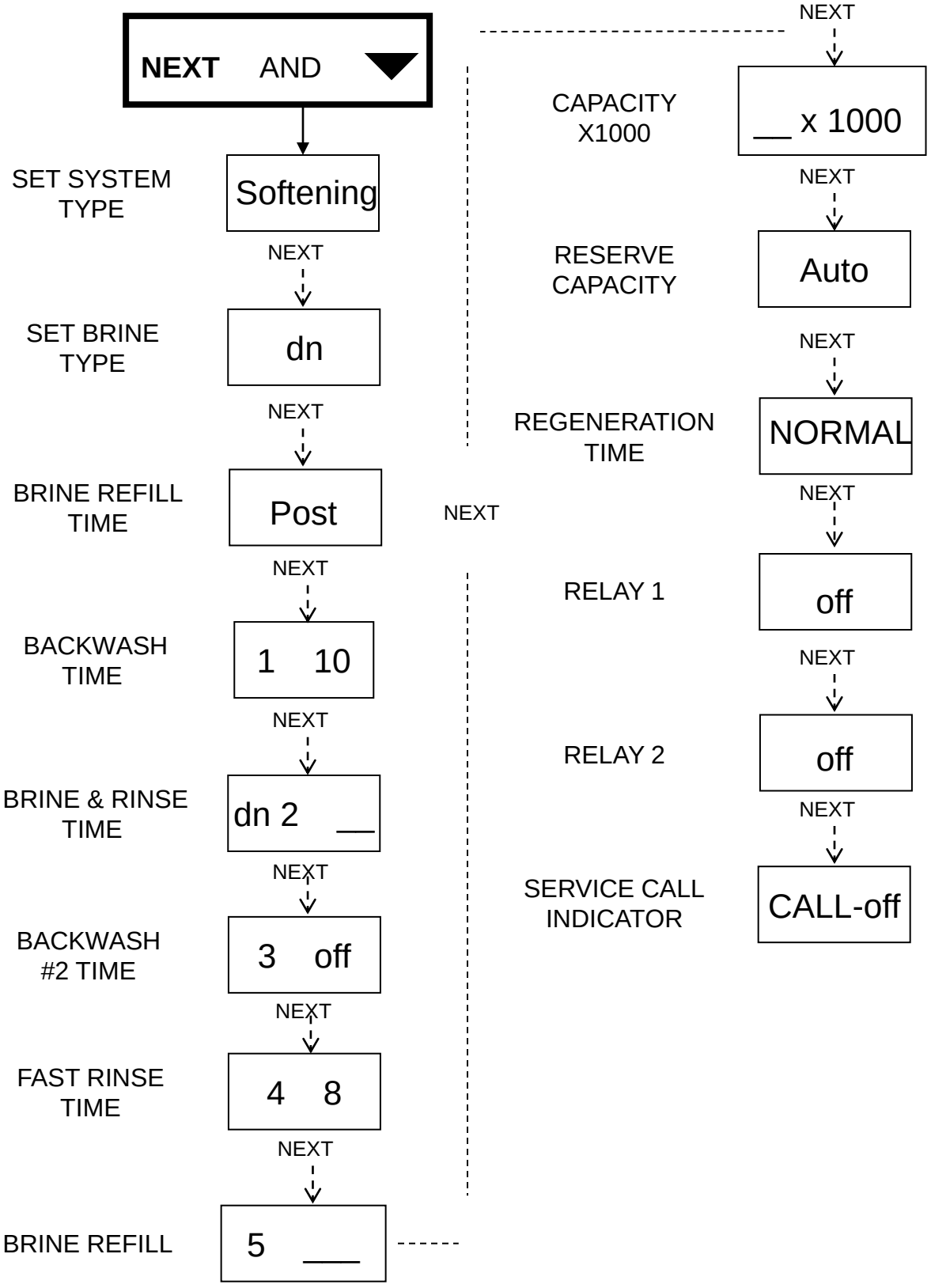
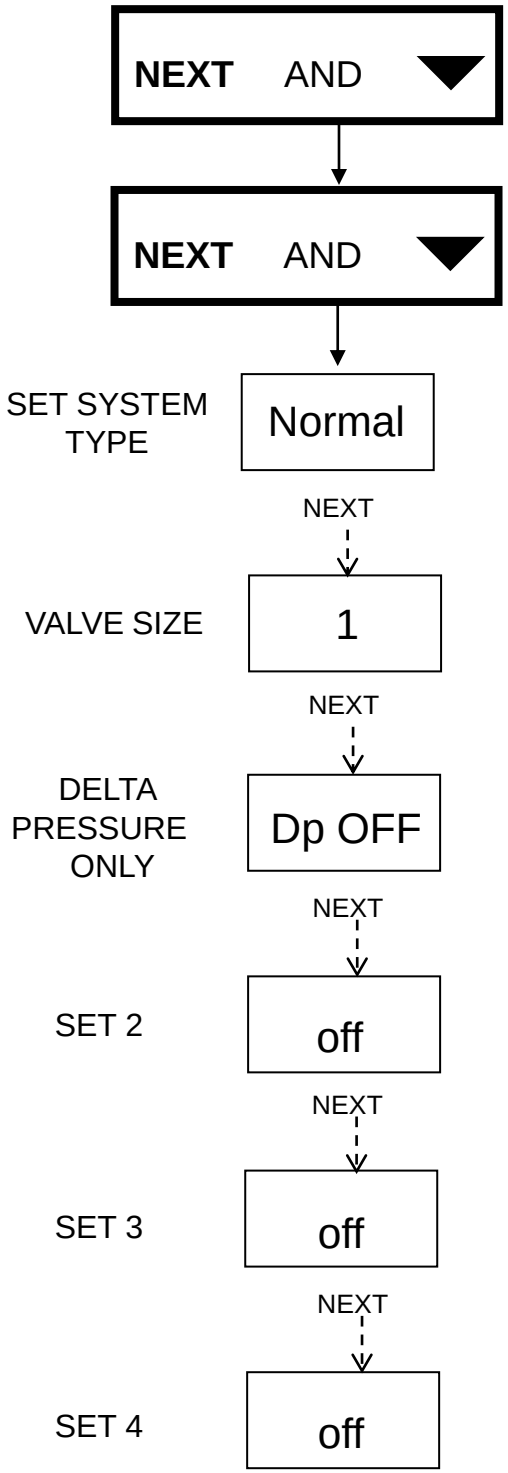
# SET TIME CLOCK



# REFERENCE ONLY
# VALVE PROGRAMING



# REFERENCE ONLY
# VALVE PROGRAMING



# MANUAL REGENERATION

REGEN

PRESS ONCE FOR NEXT REGEN TIME
PRESS AGAIN TO CANCEL REGENERATION
PRESS AND HOLD FOR 3 SECONDS FOR IMMED
PRESS IN REGEN TO ADVANCE TO NEXT CYCLE

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# LOCKING SETTINGS

AFTER SETTING A VALUE…

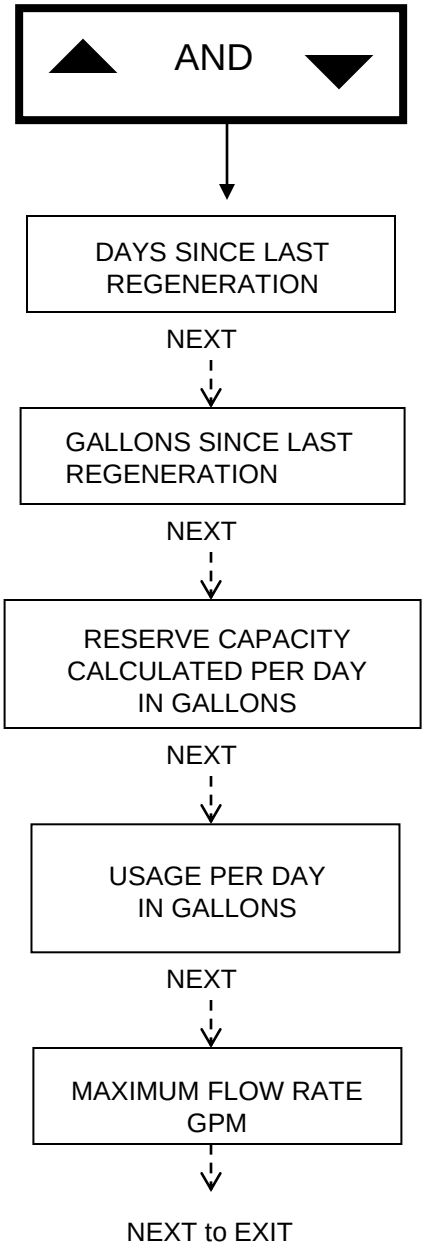
LOCK/UNLOCK:

▼ NEXT REGEN ▲

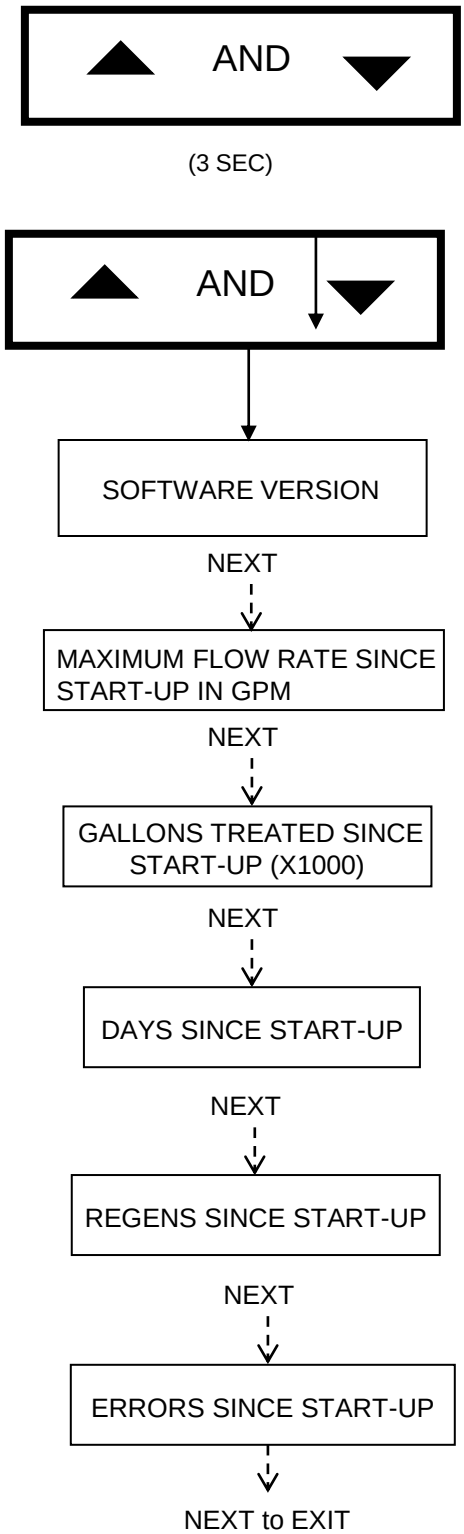
(IN SEQUENCE)

# MCA BOARD

## DIAGNOSTICS




## VALVE HISTORY



# ERROR CODES

## ERROR DESCRIPTIONS

(V3890MP-02 BOARD with 5800.0 Software)

| | |
|---|---|
| 101 | UNABLE TO START. Control not sensing valve movement with motor output energized. |
| 102 | #1 MAV/Stager #1 MOTOR STALLED. Unable to find proper park position. |
| 103 | #1 MAV/Stager #1 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 104 | #1 MAV/Stager #1 VALVE HOMING. Control unable to find the HOME position of the valve |
| 106 | #2 MAV/Stager #2 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 107 | #2 MAV/Stager #2 MOTOR STALLED. Unable to find proper park position. |
| 109 | INVALID MOTOR STATE Control can no longer operate due to the detection of an invalid motor state. |
| 116 | #3 MAV/Stager #3 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 117 | #3 MAV/Stager #3 MOTOR STALLED. Unable to find proper park position. |
| 126 | #4 MAV/Stager #4 MOTOR RAN TOO LONG. Unable to find proper park position. |
| 127 | #4 MAV/Stager #4 MOTOR STALLED. Unable to find proper park position. |
| 201 | INVALID REGEN STEP Control can no longer operate due to the detection of an invalid regeneration cycle step (Internal software error) |
| 402 | POWER DOWN MEMORY Control can no longer operate due to a check sum error for the operational data and status section memory |
| 403 | PROGRAM MEMORY Control can no longer operate due to a check sum error for the programming section memory |
| 404 | DIAGNOSTIC MEMORY Control can no longer operate due to a check sum error for the diagnostic section memory |
| 405 | HISTORY MEMORY Control can no longer operate due to a check sum error for the history section memory |
| 406 | CONTACT MEMORY Control can no longer operate due to a check sum error for the contact screen section memory. |

| | |
|---|---|
| 407 | STATUS RAM MEMORY FAILURE Control can no longer operate due to corrupted data detected in the operational and status section. Once generated the error mode is not entered nor an error display viewed. Instead previous (<6 hours) data is used |
| 408 | DIAGNOSTIC RAM MEMORY FAILURE Control can no longer operate due to corrupted data detected in the diagnostic section. Once generated, the error mode is not entered nor an error display viewed. Instead previous (<6 hours) data is used. |
| 410 | CONFIG DOWNLOAD Configurator file downpoaded to the control was not originally uploaded from another control with the identical software. |