,IT IS UNSAFE TO START USING THIS DEVICE

WITHOUT FIRST READING AND UNDERSTANDING
THIS MANUAL IN ITS ENTIRETY

OPERATOR MANUAL

FOR

BIPRO MM1P-W/D PAIRED BICARBONATE MIXER FOR HEMODIALYSIS

IMPORTANT DOCUMENT
PLEASE SAFEGUARD

February 6, 2020

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USER ASSISTANCE INFORMATION

ASSISTANCE IS AVAILABLE: Monday through Friday (excluding holidays)
8:00 am to 4:00 pm Central time.

Call: 913-438-9700

Emergency assistance is available after normal operating hours,

Call: 913-269-5681

If the phone fails to answer please leave a message, include the contact's name and a phone number that will be answered before business hours.

GENERAL DESCRIPTION

The BiPro MM1PD Bicarbonate system consists of one 100-gallon tank, one March TE7R mixing pump, one Fill/Mix Controller, one solenoid, four float switches and multiple ball valves.

The user chooses a fill amount by raising the wand switch and pressing the fill button, the fill solenoid allows the water to fill to the chosen level and shut off. The user turns on the mix pump directs the water through the mixing eductor and adds the bicarbonate powder, mixes for at least 10 minutes and tests for efficacy. The mixed & tested Bicarbonate can then be dispensed into jugs, or distribute through the loop

The specific instructions for this and other procedures are included in this manual.

WARNINGS, CAUTIONS & RECOMMENDATIONS

WARNING: It is unsafe to operate the Bicarbonate system without first reading and understanding this Operator's Instruction Manual.

WARNING: Misuse, improper operation, and/or improper monitoring of the system could result in serious injury, death, or serious reactions to patients undergoing hemodialysis treatment.

CAUTION: When used as a medical device, Federal law restricts this device to sale by or on the order of a physician.

NOTE: Where water is mentioned, it must be AAMI standard quality water.

NOTE: Once the BiPro SDS MM1PD system has been delivered to you, it is the responsibility of the Medical Director to ensure that the system is used, monitored, and maintained in such a manner so as to satisfy all applicable standards.

RECOMMENDATIONS:

Disinfection of this system prior to use and on a recurring schedule is required. Disinfection chemicals and quantities are to be determined by the Medical Director. Disinfection scheduling is to be determined by the Medical Director of the facility or facility policy.

Common disinfectants approved for use with this equipment are: chlorine bleach in a 100:1, ratio, Renalin in a 100:1 ratio. Test with approved facility testing methodology for the presence or absence of disinfectant.

Precipitate removal can be accomplished with vinegar, Citru-Clean, Renalin or acetic acid used in a 20:1 ratio. Precipitate removal should be accomplished on a minimum of a monthly basis.

Times and quantities may be altered to accommodate lengthy or difficult loops. All changes are to be approved by the Medical Director.

Filter changes for the 0.2 micron air filters are to be accomplished on an annual basis.

THESE PROCEDURES ARE INTENDED TO BE GUIDELINES FOR USE IN ESTABLISHING YOUR FACILITY'S PROCEDURES

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PAIRED - DISTRIBUTION TANK: BICARBONATE MIXING PROCEDURES

PURPOSE: TO PROPERLY PREPARE BICARBONATE CONCENTRATE.
EQUIPMENT:
1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE BICARB POWDER PACKAGES
3) APPROPRIATE CONCENTRATE TESTING METHODOLOGY (EG. SPECIFIC GRAVITY, CONDUCTIVITY)
4) AAMI STANDARD PURIFIED WATER USED TO PREPARE CONCENTRATE FOR HEMODIALYSIS
PROCEDURE: START WITH;

SPRAY TANK VALVE	**(#1) CLOSED**
FILL/MIX VALVE	**(#2) OPEN**
JUG FILL VALVE	**(#3) CLOSED**
PRIME/BACKWASH VALVE	**(#4) CLOSED** (VERTICAL)
DRAIN TANK VALVE	**(#5) CLOSED**
LOOP RETURN VALVE	**(#6) CLOSED** (VERTICAL)
TRANSFER VALVE	**(#7) CLOSED**
LOOP PUMP	**TURNED OFF**

1) RAISE WAND SWITCH TO THE DESIRED FILL LEVEL, (LOCK IN PLACE)
PRESS FILL - ON, THIS WILL FILL THE MIXING TANK TO THE REQUESTED VOLUME.

2) THE FILL WILL STOP WHEN WATER REACHES DESIRED LEVEL
ROTATE MIX PUMP SWITCH: MINIMUM 10 MINUTES OF MIX TIME (PUMP WILL COME ON)

3) SLOWLY ADD THE APPROPRIATE AMOUNT OF BICARB POWDER TO THE TANK.
AFTER POWDER IS ADDED, ALLOW TO CONTINUE MIXING FOR 1 MINUTE.
VERIFY DESIRED QUANTITY OF BICARB IS CORRECT.

4) ALLOW THE SOLUTION TO MIX FOR 10 (TEN) MINUTES.
THE PUMP WILL TURN OFF WHEN THE MIXING TIME IS COMPLETED.

5) TEST THE MIXED SOLUTION WITH THE FACILITY APPROVED TESTING METHODOLOGY
TEST AT THE **TANK SAMPLE PORT** (FRONT OF THE TANK, CLEAR THE VALVE BEFORE TESTING).

6) IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED TO STEP NUMBER **8.**

7) IF THE SOLUTION DOES NOT PASS THE SELECTED TEST, AFFIRM QUANTITY OF WATER AND POWDER ARE CORRECT (IF NOT TAKE CORRECTIVE ACTION).
CONTINUE TO MIX THE SOLUTION IN 5 (FIVE) MINUTE INTERVALS, AND REPEAT TESTING.

8) **TURN LOOP RETURN VALVE (#6) TO THE RIGHT** (TO DRAIN)
TURN THE PRIME/BACKWASH VALVE (#4) TO THE RIGHT, TO **PRIME** (HORIZONTAL)
ROTATE PUMP TIMER SWITCH TO TURN ON MIXING PUMP.
The mixed bicarb will purge the loop of rinse water and air.

9) ALLOW 3 TO 5 MINUTES FOR THE BICARB TO PURGE THE LOOP
TEST AT THE LOOP RETURN SAMPLE PORT FOR THE PRESENCE OF BICARB.

10) ONCE BICARB HAS DISPLACED THE RINSE WATER
TURN LOOP RETURN VALVE (#6)) TO THE LEFT (TO RECIRCULATE)
TURN THE PRIME/BACKWASH VALVE (#4) TO THE VERTICAL OFF POSITION
ROTATE OFF THE MIX PUMP
SWITCH ON THE LOOP PUMP,
YOU ARE NOW IN NORMAL OPERATION FOR THE DAY

PAIRED - MIXING TANK: MID-DAY MIXING PROCEDURE

PURPOSE: TO PROPERLY PREPARE BICARBONATE CONCENTRATE.

EQUIPMENT;

1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE BICARB POWDER PACKAGES
3) APPROPRIATE CONCENTRATE TESTING METHODOLOGY (EG. SPECIFIC GRAVITY, CONDUCTIVITY)
4) AAMI STANDARD PURIFIED WATER USED TO PREPARE CONCENTRATE FOR HEMODIALYSIS

PROCEDURE:

1. **START WITH;**

SPRAY VALVE	**(#1)**	**CLOSED**
MIX VALVE	**(#2)**	**OPEN**
JUG FILL	**(#3)**	**CLOSED**
DRAIN VALVE	**(#4)**	**CLOSED**
TRANSFER VALVE	**(#5)**	**CLOSED**

2. RAISE OR LOWER WAND TO SELECT THE DESIRED FILL LEVEL, **PRESS FILL-ON**
THIS WILL FILL THE MIXING TANK TO THE REQUESTED VOLUME.

3. THE FILL WILL STOP WHEN WATER REACHES DESIRED LEVEL
ROTATE PUMP TIMER SWITCH, MIMNUM 10 MINUTES OF MIX TIME (PUMP WILL COME ON)

4. **SLOWLY** ADD THE APPROPRIATE AMOUNT OF BICARB POWDER TO THE TANK.
AFTER POWDER IS ADDED, ALLOW TO CONTINUE MIXING FOR ONE MINUTE.
VERIFY DESIRED QUANTITY OF BICARB IS CORRECT.

5. ALLOW THE SOLUTION TO MIX FOR A MINIMUM OF 10 (TEN) MINUTES.
SWITCH WILL AUTOMATICALY TURN THE PUMP OFF WHEN THE MIXING TIME IS COMPLETED.

6. TEST THE MIXED SOLUTION WITH THE FACILITY APPROVED TESTING METHODOLOGY AT THE **JUG FILL VALVE (#3)** (CLEAR VALVE BEFORE TESTING).

7. IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED TO STEP NUMBER 9.

8. IF THE SOLUTION DOES NOT PASS THE SELECTED TEST, AFFIRM QUANTITY OF WATER AND POWDER ARE CORRECT (IF NOT, TAKE CORRECTIVE ACTION). CONTINUE TO MIX THE SOLUTION IN 5 (FIVE) MINUTE INTERVALS, AND REPEAT TEST.

9. WITH THE SOLUTION PREPARED AND TESTED, **ROTATE PUMP TIMER SWITCH** TO TURN ON THE MIXING PUMP.

10. **OPEN TRANSFER VALVE (#7**) ON THE **DISTRIBUTION TANK**.

11. **OPEN TRANSFER VALVE (#5)** ON THE **MIX TANK**, **CLOSE THE MIXING VALVE (#2)** ON THE MIX TANK
THE MIXED BICARBONATE WILL TRANSFER FROM THE MIX TANK TO THE DISTRIBUTION TANK IN JUST A FEW MINUTES. YOU MUST **TURN OFF THE MIXING PUMP** WHEN COMPLETE TO PREVENT IT FROM BURNING UP.

12. WHEN TRANSFER IS COMPLETE:
CLOSE THE TRANSFER VALVE (#5) ON THE MIX TANK, TO PREVENT BICARB FROM FLOWING BACK TO MIX TANK
CLOSE THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK.

13. **OPEN THE DRAIN VALVE (#4)** ON THE MIX TANK.

PAIRED - MIX TANK: END OF DAY RINSING PROCEDURE
YOU MUST START WITH MIX TANK

BEFORE STARTING PROCEDURE, VERIFY THAT NO PATIENTS ARE RECEIVING TREATMENT

PURPOSE: TO PROPERLY RINSE THE BICARB MIXING SYSTEM.

EQUIPMENT: 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) AAMI STANDARD PURIFIED WATER

PROCEDURE:

1). START WITH;

SPRAY VALVE	**(#1) CLOSED**
MIX VALVE	**(#2) OPEN**
JUG FILL	**(#3) CLOSED**
DRAIN VALVE	**(#4) OPEN**
TRANSFER VALVE	**(#5) CLOSED**

1. ADJUST THE WAND TO FILL TO 25 GALLON LEVEL, **PRESS FILL-ON**

2. AFTER ONE (2) MINUTES

3. **ROTATE PUMP TIMER SWITCH: SET FOR TWO (2) MINUTES**

4. WHEN THE MIXING PUMP HAS SHUT OFF ALLOW RINSE WATER TO FLOW FOR ONE (1) MORE MINUTE.

5. OPEN THE **SPRAY VALVE (#1)**
6. CLOSE THE **FILL/MIX VALVE (#2).**
ALLOW TO SPRAY THE MIXING TANK FOR 5 MINUTES

7. **AFTER 5 MINUTES: OPEN THE TRANSFER VALVE (#5) ON THE MIX TANK**
OPEN THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK ALLOW TO FLOW FOR 3 MINUTES, LEAVE OPEN.

8. PLACE A 5-GAL BUCKET UNDER THE JUG FILL VALVE (# 3)
OPEN AND FLUSH THE JUG FILL **SAMPLE PORT(#3)** AND TEST FOR THE ABSENCE OF BICARBONATE.
WHEN SATISFIED NO BICARBONATE REMAINS,
CLOSE THE JUG FILL SAMPLE PORT VALVE (#3)
CLOSE THE TRANSFER VALVE (#5) ON THE MIX TANK
CLOSE THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK

9. AFTER TWO MINUTES TURN PRESS THE **EM-OFF** TO STOP FILLING.
CLOSE THE SPRAY MIX TANK VALVE(#1)

10. ALLOW THE MIX TANK TO DRAIN. WHEN THE TANK IS EMPTY,
CLOSE DRAIN VALVE (#4), OPEN **FILL/MIX VALVE (#2)**
PLACE A 5 GALLON BUCKET UNDER THE SAMPLE PORT ON THE FRONT OF THE TANK.
OPEN THE SAMPLE PORT

11. **PRESS FILL-ON**, FILL WILL STOP WHEN WATER REACHES THE 25 GALLON LEVEL.
TEST AT THE **SAMPLE PORT** FOR THE ABSENCE OF BICARBONATE, WHEN SATISFIED NO BICARBONATE REMAINS, PROCEED: IF BICARBONATE IS DETECTED OPEN THE DRAIN AND REFILL, RE-TEST AND CONTINUE:
WHEN TEST MEETS FACILITY STANDARDS, PROCEED.

12. OPEN THE **DRAIN VALVE (#4) ALLOW TO DRAIN.**

13. **PROCEED TO THE END OF DAY RINSE FOR THE DISTRIBUTION TANK**

PAIRED - DISTRIBUTION TANK: END OF DAY RINSING PROCEDURE

PURPOSE: TO PROPERLY RINSE THE BICARB MIXING SYSTEM.

EQUIPMENT: 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) AAMI STANDARD PURIFIED WATER

PROCEDURE: **START WITH; SPRAY TANK VALVE** **(#1) CLOSED**
FILL/MIX VALVE **(#2) OPEN**
JUG FILL VALVE **(#3) CLOSED**
PRIME/BACKWASH VALVE **(#4) CLOSED** (VERTICAL)
DRAIN TANK VALVE **(#5) OPEN**
LOOP RETURN VALVE **(#6) CLOSED** (VERTICAL)
TRANSFER VALVE **(#7) CLOSED**

1) ADJUST THE WAND TO FILL TO 50 GALLON LEVEL, **PRESS FILL, FILL-ON**

2) AFTER ONE MINUTE **OPEN** THE **SPRAY VALVE (#1) CLOSE** THE **FILL/MIX VALVE (#2).**
PLACE A 5-GAL BUCKET UNDER THE JUG FILL VALVE (# 3)
OPEN THE **JUG FILL SAMPLE PORT (#3). RINSE FREE OF BICARBONATE**

3) ALLOW THE INCOMING WATER TO CONTINUE TO SPRAY AND RUN TO DRAIN

4) **TURN LOOP RETURN VALVE (#6) TO THE RIGHT** (TO DRAIN)
TURN PRIME/BACKWASH VALVE (#4). TO LEFT, BACKWASH (HORIZONTAL)
WATER WILL NOW BACKWASH BOTH THE MIX AND LOOP PUMPS.
ALLOW TO FLUSH FOR ONE MINUTE.

5) AFTER ONE (1) MINUTE,
TURN PRIME/BACKWASH VALVE (#4), RIGHT TO **PRIME** (HORIZONTAL)

6) ALLOW 3 TO 5 MINUTES FOR THE RINSE WATER TO PURGE THE LOOP OF BICARBONATE SOLUTION.
TEST AT THE LOOP RETURN VALVE (#6) FOR THE ABSENCE OF BICARBONATE SOLUTION.

7) **TURN LOOP RETURN VALVE (#6) TO THE LEFT** (TO RECIRCULATE)
FLUSH AND CHECK ALL STATION PORTS FOR ABSENCE OF BICARBONATE. WHEN NONE IS DETECTED, PROCEED.

8) **OPEN FILL/MIX VALVE (#2)**
CLOSE SPRAY TANK VALVE (1)
CLOSE DRAIN TANK VALVE (#5)
PLACE A 5 GALLON BUCKET UNDER THE SAMPLE PORT ON THE FRONT OF THE TANK.
OPEN TANK SAMPLE PORT , TEST OUT FLOW UNTIL NEGATIVE FOR BICARBONATE.
WHEN SATISFIED NONE REMAINS, PROCEED.

9) PRESS **EM-OFF** TO STOP FILLING

10) IF YOU **DO NOT** WANT TO RECIRCULATE WATER:
OPEN DRAIN VALVE (#5)
CLOSE PRIME LOOP VALVE (#6) (VERTICAL**)**

11) IF YOU DO WANT TO RECIRCULATE WATER THROUGH THE LOOP **TURN ON LOOP PUMP**.

PAIRED - MIX TANK: CHEMICAL DISINFECT PROCEDURE YOU MUST START WITH MIX TANK

PURPOSE: TO PROPERLY DISINFECT SYSTEM

EQUIPMENT; 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE DISINFECTANT
3) APPROPRIATE TESTING MATERIALS
4) AAMI STANDARD PURIFIED WATER

1. PROCEDURE: START WITH; SPRAY VALVE (#1) CLOSED
MIX VALVE (#2) OPEN
JUG FILL (#3) CLOSED
DRAIN VALVE (#4) CLOSED
TRANSFER VALVE (#5) CLOSED

2. RAISE OR LOWER WAND TO SELECT THE DESIRED FILL LEVEL,
PRESS FILL - ON, THIS WILL FILL THE MIXING TANK TO THE REQUESTED VOLUME.

3. THE FILL WILL STOP WHEN WATER REACHES DESIRED LEVEL
ROTATE PUMP TIMER SWITCH: SET FOR 10 MINUTES

4. SLOWLY ADD THE APPROPRIATE AMOUNT OF DISINFECTANT TO THE TANK.
CLOSE THE LID: **DO NOT OPEN THE LID AGAIN UNTIL THE COMPLETION OF THE RINSE PROCEDURE.**

5. ALLOW THE SOLUTION TO MIX FOR 1(ONE) MINUTE.

6. TEST THE MIXED SOLUTION WITH THE APPROPRIATE TESTING METHODOLOGY AT THE **JUG FILL VALVE (#3)** (CLEAR THE VALVE BEFORE TESTING).

7. IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED.
(IF THE SOLUTION DOES NOT PASS THE SELECTED TEST, AFFIRM QUANTITY OF WATER AND DISINFECTANT IS CORRECT AND CONTINUE TO MIX THE SOLUTION IN 1 (ONE) MINUTE INTERVALS, AND REPEAT TESTING).

8. **OPEN THE SPRAY VALVE (#1)**, SPRAY THE TANK FOR ONE MINUTE

9 CLOSE THE DRAIN ON THE DISTRIBUTION TANK.
OPEN THE TRANSFER VALVE (#5) ON THE MIX TANK
OPEN THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK
ALLOW TO FLOW FROM THE MIXING TANK INTO THE DISTRIBUTION TANK.

10. WHEN THE MIXING TANK IS EMPTY:
CLOSE THE TRANSFER VALVE (#5) ON THE MIX TANK
TURN OFF THE MIXING PUMP.

11. **OPEN THE MIX TANK DRAIN, ALLOW REMAINING CONTENTS TO DRAIN TO DRAIN**
WHEN TANK IS DRAINED OPEN THE JUG ILL VALVE (#3) AND THE TANK SAMPLE PORT AND ALLOW TO DRAIN.

12. **PROCEED TO THE DISTRIBUTION TANK DISINFECTION:**

THIS IS AN INCOMPLETE PROCEDURE, UNTIL THE DISTRIBUTION TANK IS DISINFECTED.

PAIRED - DISTRIBUTION TANK: DISINFECT PROCEDURE

PURPOSE: TO PROPERLY DISINFECT SYSTEM
EQUIPMENT:
1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE DISINFECTANT
3) APPROPRIATE CONCENTRATE TESTING METHODOLOGY
4) AAMI STANDARD PURIFIED WATER

PROCEDURE:	**START WITH;**	**SPRAY TANK VALVE**	**(#1) CLOSED**
		FILL/MIX VALVE	**(#2) OPEN**
		JUG FILL VALVE	**(#3) CLOSED**
		PRIME/BACKWASH VALVE	**(#4) CLOSED** (VERTICAL)
		DRAIN TANK VALVE	**(#5) CLOSED**
		LOOP RETURN VALVE	**(#6) CLOSED** (VERTICAL)
		TRANSFER VALVE	**(#7) OPEN**

1) THE CHEMICAL DISINFECT SOLUTION HAS BEEN TRANSFERRED FROM THE MIX TANK

2) **ROTATE MIX PUMP SWITCH: MINIMUM 10 MINUTES. LONGER TIMES CAN BE SELECTED IF NEEDED**

3) RE-TEST THE MIXED SOLUTION WITH THE APPROPRIATE TESTING METHODOLOGY AT THE **TANK SAMPLE PORT** (FRONT OF THE TANK, CLEAR THE VALVE BEFORE TESTING).
CLOSE THE LID: **DO NOT OPEN THE LID AGAIN UNTIL THE COMPLEATION OF THE RINSE PROCEDURE.**

4) IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED TO STEP NUMBER 8.

5) IF THE SOLUTION DOES NOT PASS THE SELECTED TEST, AFFIRM QUANTITY OF WATER AND DISINFECTANT IS CORRECT AND CONTINUE TO MIX THE SOLUTION IN 1 (ONE) MINUTE INTERVALS, ADD DISINFECTANT IF NECESSARY AND REPEAT TESTING.

6) **TURN LOOP RETURN VALVE (#6) TO THE RIGHT** (TO DRAIN)
TURN THE PRIME/BACKWASH VALVE (#4) TO THE RIGHT TO **PRIME** (HORIZONTAL)
OPEN THE SPRAY VALVE (#1)
The mixed disinfectant will purge the loop of rinse water and air while spraying the interior of the tank.

7) ALLOW 3 TO 5 MINUTES FOR THE DISINFECTANT TO PURGE THE LOOP TEST AT THE LOOP SAMPLE PORT FOR THE PRESENCE OF DISINFECTANT. **TURN OFF THE SPRAY VALVE #1.**

8) ONCE DISINFECTANT HAS DISPLACED THE BICARB IN THE LOOP
TURN LOOP RETURN VALVE (#6) TO THE LEFT (TO RECIRCULATE)

9) PLACE A 5-GAL BUCKET UNDER THE JUG FILL VALVE (#3)
OPEN JUG FILL VALVE (#3) ALLOW TO FLUSH FOR 5 SECONDS.
ROTATE THE PUMP SWITCH TO OFF
TURN PRIME/BACKWASH VALVE (#4). TO VERTICAL OFF POSITION

10) **SWITCH ON THE LOOP PUMP, ALLOW TO RUN WHILE OPENING THE INDIVIDUAL BICARB PORTS AT EACH WALL STATION TO EXPOSE TO DISINFECTANT.**

11) **WHEN COMPLETED, TURN OFF THE LOOP PUMP.**
OPEN DRAIN VALVE (#5). ALLOW TO DRAIN AND WAIT FOR THE ALLOTTED CONTACT TIME.
WHEN TANK IS DRAINED OPEN THE JUG ILL VALVE (#3) AND THE TANK SAMPLE PORTS AND ALLOW TO DRAIN.

NEVER LEAVE DISINFECTANT IN THE SYSTEM
PROCEED TO RINSING THE SYSTEM

PAIRED - MIX TANK: RINSING THE SYSTEM

PURPOSE: TO PROPERLY RINSE THE BICARB MIXING SYSTEM.

EQUIPMENT: 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) AAMI STANDARD PURIFIED WATER **PROCEDURE:**

1). START WITH;

SPRAY VALVE	**(#1) CLOSED**
MIX VALVE	**(#2) OPEN**
JUG FILL	**(#3) CLOSED**
DRAIN VALVE	**(#4) OPEN**
TRANSFER VALVE	**(#5) CLOSED**

1. ADJUST THE WAND TO FILL TO 100 GALLON LEVEL, **PRESS FILL-ON**

2. AFTER TWO (2) MINUTES

3. **ROTATE PUMP TIMER SWITCH: SET FOR TWO (2) MINUTES**

4. WHEN THE MIXING PUMP HAS SHUT OFF ALLOW RINSE WATER TO FLOW TO DRAIN FOR TWO (2) MORE MINUTES.

5. OPEN THE **SPRAY VALVE (#1)** CLOSE THE **FILL/MIX VALVE (#2).**

6. **OPEN THE TRANSFER VALVE (#5) ON THE MIX TANK**
OPEN THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK

7. **OPEN AND** FLUSH THE **JUG FILL VALVE (#3)** AND TEST FOR THE ABSENCE OF DISINFECTANT. WHEN SATISFIED NO DISINFECTANT REMAINS, CLOSE THE **JUG FILL VALVE (#3)** AND PROCEED:

8. C**LOSE THE TRANSFER VALVE (#5) ON THE MIX TANK**
CLOSE THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK
AFTER TWO MINUTES **PRESS** THE **EM-OFF** TO STOP FILLING.

9. ALLOW THE TANK TO DRAIN. WHEN THE TANK IS EMPTY,
CLOSE **DRAIN VALVE (#4),**
CLOSE SPRAY VALVE (#1)
OPEN **FILL/MIX VALVE (#2)**

10. OPEN THE MIX TANK SAMPLE PORT**, PLACE 5 GALLON BUCKET UNDER SAMPLE PORT**
PRESS FILL ON, FILL WILL STOP WHEN WATER REACHES THE 25 GALLON LEVEL.
TEST AT THE **TANK SAMPLE PORT** FOR THE ABSENCE OF DISINFECTANT,
WHEN SATISFIED NO DISINFECTANT REMAINS, PROCEED: IF DISINFECTANT IS DETECTED OPEN THE DRAIN AND REFILL, RE-TEST AND CONTINUE: WHEN TEST MEETS FACILITY STANDARDS, PROCEED.

11. OPEN THE **DRAIN VALVE (#4) ALLOW TO DRAIN.**

THIS IS AN INCOMPLETE PROCEDURE, UNTIL THE DISTRIBUTION TANK IS RINSED.

PAIRED - DISTRIBUTION TANK: RINSING THE SYSTEM

PURPOSE: TO PROPERLY RINSE THE BICARB MIXING SYSTEM.

EQUIPMENT: 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) AAMI STANDARD PURIFIED WATER

PROCEDURE: **START WITH;**

SPRAY TANK VALVE	**(#1) CLOSED**
FILL/MIX VALVE	**(#2) OPEN**
JUG FILL VALVE	**(#3) CLOSED**
PRIME/BACKWASH VALVE	**(#4) CLOSED** (VERTICAL)
DRAIN TANK VALVE	**(#5) OPEN**
LOOP RETURN VALVE	**(#6) CLOSED** (VERTICAL)
TRANSFER VALVE	**(#7) CLOSED**

1) WITH THE WAND SWITCH RAISED TO THE 25 GALLON FILL LEVEL, **PRESS FILL, FILL-ON**

2) AFTER 30 SECONDS **OPEN** THE **SPRAY VALVE (#1)**
PLACE A 5-GAL BUCKET UNDER THE JUG FILL VALVE (# 3) **OPEN** THE **JUG FILL VALVE (#3)**
ALLOW TO FLUSH UNTIL NO DISINFECTANT IS DETECTED, THEN CLOSE

3) **CLOSE** THE **FILL/MIX VALVE (#2).**
ALLOW THE INCOMING WATER TO CONTINUE TO SPRAY AND RUN TO DRAIN

4) **TURN LOOP RETURN VALVE (#6) TO THE RIGHT** (TO DRAIN)
TURN PRIME/BACKWASH VALVE (#4). TO LEFT, BACKWASH (HORIZONTAL) WATER WILL NOW BACKWASH BOTH THE MIX AND LOOP PUMPS. ALLOW TO FLUSH FOR TWO MINUTES.

5) AFTER TWO (2) MINUTES, **TURN PRIME/BACKWASH VALVE (#4). TO RIGHT,** TO **PRIME** (HORIZONTAL)

6) ALLOW 3 TO 5 MINUTES FOR THE RINSE WATER TO PURGE THE LOOP
BEGIN TESTING AT THE LOOP SAMPLE PORT FOR THE ABSENCE OF DISINFECTANT. WHEN NO DISINFECTANT IS DETECTED, PROCEED.

7) **TURN LOOP RETURN VALVE (#6) TO THE LEFT** (TO RECIRCULATE) **FLUSH AND CHECK ALL STATION PORTS FOR ABSENCE OF DISINFECTANT.** WHEN NO DISINFECTANDETECTED, PROCEED.

8) **TURN PRIME/BACKWASH VALVE (#4). TO VERTICAL OFF POSITION**
TURN LOOP RETURN VALVE (#6) TO VERTICAL OFF POSITION

9) **OPEN FILL/MIX VALVE (#2)**
CLOSE THE SPRAY MIX TANK VALVE (#1)
CLOSE DRAIN TANK VALVE (#5) ALLOW THE TANK TO BEGIN FILLING
OPEN TANK SAMPLE PORT , BEGIN TESTING OUT FLOW UNTIL NEGATIVE FOR DISINFECTANT.
WHEN SATISFIED NO DISINFECTANT REMAINS, PROCEED.

10) PRESS **EM-OFF** TO STOP FILLING

11) IF YOU **DO NOT** WANT TO RECIRCULATE WATER:

12) **OPEN DRAIN VALVE (#5)**

13) **CLOSE PRIME LOOP VALVE (#6) (**VERTICAL**)**

14) IF YOU **DO** WANT TO RECIRCULATE WATER THROUGH THE LOOP **TURN LOOP RETURN VALVE (#6) TO THE LEFT** (TO RECIRCULATE) **TURN ON LOOP PUMP**.

YOU MUST START WITH MIX TANK

PURPOSE: TO PROPERLY REMOVE PRECIPITATE FROM THE MIXING SYSTEM

EQUIPMENT; 1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE LOW pH SOLUTION
3) APPROPRIATE TESTING MATERIALS
4) AAMI STANDARD PURIFIED WATER **PROCEDURE:**

1. **START WITH; SPRAY VALVE (#1) CLOSED**
   MIX VALVE (#2) OPEN
   JUG FILL (#3) CLOSED
   DRAIN VALVE (#4) CLOSED
   TRANSFER VALVE (#5) CLOSED

2. RAISE OR LOWER WAND TO SELECT THE DESIRED FILL LEVEL,
   PRESS FILL - ON, THIS WILL FILL THE MIXING TANK TO THE REQUESTED VOLUME.

3. THE FILL WILL STOP WHEN WATER REACHES DESIRED LEVEL
   ROTATE PUMP TIMER SWITCH: SET FOR 10 MINUTES

4. SLOWLY ADD THE APPROPRIATE AMOUNT OF LOW pH SOLUTION TO THE TANK.
   CLOSE THE LID: **DO NOT OPEN THE LID AGAIN UNTIL THE COMPLETION OF THE RINSE PROCEDURE.**

5. ALLOW THE SOLUTION TO MIX FOR 1(ONE) MINUTE.

6. TEST THE MIXED SOLUTION WITH THE APPROPRIATE TESTING METHODOLOGY AT THE **JUG FILL VALVE (#3)**
   (CLEAR THE VALVE BEFORE TESTING).

7. IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED.
   (IF THE SOLUTION DOES NOT PASS THE SELECTED TEST, AFFIRM QUANTITY OF WATER AND LOW pH SOLUTION IS CORRECT AND CONTINUE TO MIX THE SOLUTION IN 1 (ONE) MINUTE INTERVALS, AND REPEAT TESTING).

8. **OPEN THE SPRAY VALVE (#1)**, SPRAY THE TANK FOR ONE MINUTE
   CLOSE THE **SPRAY VALVE (#1)**, AFTER ONE MINUTE

9. CLOSE THE DRAIN ON THE **DISTRIBUTION TANK**.
   OPEN THE TRANSFER VALVE (#5) ON THE MIX TANK
   OPEN THE TRANSFER VALVE (#7) ON THE DISTRIBUTION TANK
   ALLOW TO FLOW FROM THE MIXING TANK INTO THE DISTRIBUTION TANK.

10. WHEN THE MIXING TANK IS EMPTY:
    CLOSE THE TRANSFER VALVE (#5) ON THE MIX TANK
    TURN OFF THE MIXING PUMP.

11. **OPEN THE MIX TANK DRAIN, ALLOW REMAINING CONTENTS TO DRAIN.**

12. **PROCEED TO THE DISTRIBUTION TANK PRECIPITATE REMOVAL PROCEDURE:**

THIS IS AN INCOMPLETE PROCEDURE, UNTIL THE DISTRIBUTION TANK IS COMPLETED.

PAIRED - DISTRIBUTION TANK:
PRECIPITATE REMOVAL PROCEDURE

PURPOSE: TO PROPERLY REMOVE PRECIPITATE FROM THE DISTRIBUTION SYSTEM

EQUIPMENT:

1) MEDICAL SOLUTIONS BICARB MIXING SYSTEM
2) APPROPRIATE LOW pH SOLUTION
3) APPROPRIATE TESTING METHODOLOGY
4) AAMI STANDARD PURIFIED WATER

PROCEDURE: START WITH;

SPRAY TANK VALVE	**(#1) CLOSED**
FILL/MIX VALVE	**(#2) OPEN**
JUG FILL VALVE	**(#3) CLOSED**
PRIME/BACKWASH VALVE	**(#4) CLOSED** (VERTICAL)
DRAIN TANK VALVE	**(#5) CLOSED**
LOOP RETURN VALVE	**(#6) CLOSED** (VERTICAL)
TRANSFER VALVE	**(#7) OPEN**

1) THE LOW pH SOLUTION HAS BEEN TRANSFERRED FROM THE MIX TANK

2) **ROTATE MIX PUMP SWITCH: MINIUM 10 MINUTES. LONGER TIMES CAN BE SELECTED IF NEEDED**

3) RE-TEST THE MIXED SOLUTION WITH THE APPROPRIATE TESTING METHODOLOGY AT THE **TANK SAMPLE PORT** (FRONT OF THE TANK, CLEAR THE VALVE BEFORE TESTING).

4) IF THE SOLUTION PASSES THE SELECTED TEST, PROCEED TO STEP NUMBER 8.

5) IF THE SOLUTION DOES NOT PASS SELECTED TEST, AFFIRM QUANTITY OF WATER AND LOW pH SOLUTION IS CORRECT AND CONTINUE TO MIX THE SOLUTION IN ONE MINUTE NTERVALS, ADD LOW pH SOUTION IF NECESSARY AND REPEAT TESTING.

6) **TURN LOOP RETURN VALVE (#6) TO THE RIGHT** (TO DRAIN)
TURN THE PRIME/BACKWASH VALVE (#4) TO THE RIGHT TO **PRIME** (HORIZONTAL) **OPEN THE SPRAY VALVE (#1)**
The mixed LOW pH SOLUTION will purge the loop of rinse water and air while spraying the interior of the tank.

7) ALLOW 3 TO 5 MINUTES FOR THE LOW pH SOLUTION TO PURGE THE LOOP, TEST AT THE LOOP SAMPLE PORT FOR THE PRESENCE OF LOW pH SOLUTION. **TURN OFF THE SPRAY VALVE #1.**

8) ONCE LOW Ph SOLUTION HAS DISPLACED THE BICARB IN THE LOOP **TURN LOOP RETURN VALVE (#6) TO THE LEFT** (TO RECIRCULATE)

9) PLACE A 5-GAL BUCKET UNDER THE JUG FILL VALVE (#3) **OPEN JUG FILL VALVE (#3)** ALLOW TO FLUSH FOR 5 SECONDS.
ROTATE THE PUMP SWITCH TO OFF
TURN PRIME/BACKWASH VALVE (#4). TO VERTICAL OFF POSITION

10) **SWITCH ON THE LOOP PUMP, ALLOW TO RUN WHILE OPENING THE INDIVIDUAL BICARB PORTS AT EACH WALL STATION TO EXPOSE TO** LOW pH SOLUTION.

11) **WHEN COMPLETED, TURN OFF THE LOOP PUMP.**
OPEN DRAIN VALVE (#5). ALLOW TO DRAIN AND WAIT FOR THE ALLOTTED CONTACT TIME. WHEN TANK IS DRAINED OPEN THE JUG FILL VALVE (#3) AND THE TANK SAMPLE PORTS AND ALLOW TO DRAIN.

NEVER LEAVE SOLUTION IN THE SYSTEM

PROCEED TO RINSING THE SYSTEM,

PAGE 13 FOR THE MIXING TANK
PAGE 14 FOR THE DISTRIBUTION TANK

BiPro MM1P-W/D Bicarbonate Mixer Parts list for MM1 Series

BiPro SDS CB200 Bicarbonate Mixer Parts List:

898-007	3/4" THREADED UNION EPDM PVC SCHEDULE 8
BV-6621-007	3/4" COMPACT BALL VALVE T X T
BV-ASAHI 3 WAY	3 WAY BALL VALVE TYPE 23 1/2" AA2511005
BV-PVC-350E	1/2" 3 WAY BALL VALVE (TOP OF SINGLE MIXERS ALL GRAY)
CV-4529-007	3/4" CHECK VALVE TRUE UNION BALL CHECK
FIL-DCP02000	.2 MICRON AIR FILTER
FS-46515K41	HORIZONTAL FLOAT SWITCH-SIDE MOUNT
FS-50195K94	VERTICAL MOUNTING LEVEL SWITCH
HHC-711	HINGED HATCH COVER
K-BVDA-MM1P	BALL VALVE DRAIN ASSEMBLY, ASSEMBLY INCLUDES: MM1PD DRAIN ASSEMBLY AND (1) CV-4529-015
K-CDA-MM1P	CENTER DRAIN ASSEMBLY FOR MM1P, ASSEMBLY INCLUDES: (1) BV-2122-015 (1)801-015 (1) 809-015 (1) 829.15 (2) 897-015 (1) 898-015
K-LPA-MM1PD	LOOP PUMP ASSEMBLY FOR MM1PD
K-V6-3W	KIT 3 WAY VALVE LOOP RETURN KIT FOR MM1PD UNION TO UNION
M-MXR-BICFM	BICARB FIL/MIX CONTROL BOX ON 100 GALLON MIXER
M-MXR-WD	WAND ASSEMBLE FOR 100 GALLON TANK
M-RA02	REMOTE ALARM W/RESET MUTE FOR BICARBONATE SYSTEM
PMP-IW-55RLT	IWAKI PUMP 55RLT – PUMP WITH WET END KIT
PMP-IW-55RLT-WEK	WET END KIT FOR IWAKI PUMP 55RLT
PMP-M-TE7R	MARCH PUMP TE7R – PUMP WITH WET END KIT

Mixer Parts List (continued)

PMP-M-TE7R-WEK	WET END KIT FOR MARCH PUMP TE7R
SN-17020	1/4" SPIRAL JET SPRAY NOZZLE
SOL-04-SAN-D	SANILITE DIAPHRAGM FOR ZERO DIFFERENTUAL SOLENOID
SOL-7524VNC	SOLENOID 3/4” 24 VOLT Normally/Closed AC (systems 1997- 2019)

Medical Solutions

INTERNATIONAL

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