

LIMITATIONS, DESCRIPTION & MAINTENANCE OF THIS SYSTEM

MODEL MAXX DELUXE 4 RO/DI-GPD

LIMITATIONS- OUTPUT OF PURE WATER

THE THIN FILM COMPOSITE MEMBRANE IN THIS SYSTEM IS RATED BY GALLONS PER DAY OF PRODUCTION IT CAN ACHIEVE. THIS RATING WAS DETERMINED AT A WATER INLET PSI OF 65, A WATER TEMPERATURE OF 77 DEGREES FARENHEIT AND A WATER TDS LEVEL OF 500 MG/L NaCl SOLUTION. IF INLET PRESSURE IS BELOW 65, THERE IS A PROPORTIONATE DECREASE IN PURE WATER PRODUCTION. IF THE WATER IS BELOW 77 DEGREES FARENHEIT, PRODUCTION WILL BE LESS, IF MORE THAN 500 TDS IS PRESENT IN THE SOURCE WATER, PRODUCTION MAY BE SLIGHTLY AFFECTED. SYSTEM OUTPUT WILL INCREASE AFTER CARTRIDGES AND MEMBRANE BECOME SATURATED(WITHIN ONE WEEK).

DESCRIPTION OF SYSTEM FUNCTIONS

LOOK AT THE SYSTEM FROM THE FRONT.....FROM RIGHT TO LEFT.

- 1) A **HOSE BIB ADAPTER** IS SUPPLIED TO ATTACH THE SOURCE WATER THROUGH A YELLOW TUBE TO THE CENTRAL SYSTEM.
- 2) THE WATER PASSES THROUGH AN **AUTOMATIC SHUT OFF VALVE** AND THEN A **PRESSURE GAUGE** TO READ THE PSI OF THE SOURCE WATER SUPPLY.
- 3) SOURCE WATER ENTERS THE **FIRST CANISTER** CONTAINING A **1 MICRON CARBON BLOCK CARTRIDGE (P/N IWF CTO 85-1)**. THIS IS A HIGH QUALITY CARBON BLOCK CARTRIDGE THAT IS USED TO TREAT LARGE QUANTITIES OF WATER AND REMOVES CHLORINE.
- 4) THE **SECOND CANISTER** CONTAINS A **5 MICRON CARBON BLOCK CARTRIDGE (P/N IWF CTO 85-5)**. ITS PURPOSE IS REMOVAL OF CHLORINE FROM THE SOURCE WATER. THIS IS A HIGH CAPACITY CARBON BLOCK CARTRIDGE AND TREATS LAGRE QUANTITES OF SOURCE WATER.
- 5) **MEMBRANE HOUSING.** THE PREFILTERED SOURCE WATER IS NOW CLEAN AND CHLORINE FREE AND ENTERS THE HORIZONTALLY MOUNTED MEMBRANE HOUSING. A **SECOND PRESSURE GAUGE** READS THE PSI EXERTED ON THE **THIN FILM COMPOSITE MEMBRANE** (PORE SIZE NO LARGER THAN .001 MICRON).
- 6) THE PROCESS OF **REVERSE OSMOSIS** USES THE WATER PRESSURE TO **SEPARATE PURE WATER MOLECULES** BY DRIVING THEM THROUGH THE MEMBRANE AND SEPERATES OUT **TOTAL DISSOLVED SOLIDS** (TDS), VIRUSES, BACTERIA, PESTICIDES, HERBICIDES, CYSTS, FLUORIDES, ARSENIC, CALCUIM, HEAVY METALS, ETC. WHICH ARE REJECTED BY THE MEMBRANE.
- 7) THE PURE PRODUCT WATER EXITS THE MEMBRANE HOUSING VIA A **CHECK VALVE** THROUGH A BLUE TUBE AT THE END OF THE MEMBRANE HOUSING.
- 8) AFTER THE CHECK VALVE, THE BLUE TUBE THEN ENTERS THE **THIRD CANISTER** WHICH CONTAINS A **MIXED BED DYED DI RESIN** CARTRIDGE (P/N IWF DI 62). THE PURPOSE OF THE THIRD CANISTER DI CARTRIDGE IS **TO REMOVE ANY REMAINING OR RESIDUAL TDS** NOT PREVIOUSLY REMOVED BY REVERSE OSMOSIS. THE MIXED BED IS BOTH CATION AND ANION RESIN DYED PURPLE AND BLUE. WHEN THE BEADS OF RESIN CHANGE COLOR TO LIGHT TAN AND YELLOW, THE RESIN IS EXHAUSTED AND THE CARTRIDGE NEEDS TO BE CHANGED. WHEN THE WATER EXITS CANISTER #3 IT HAS ZERO TDS AND FLOWS

EITHER TO A RESERVIOR OR TANK.

- 9) AT THE SAME TIME THAT PURE WATER IS EXITING THE MEMBRANE HOUSING TO BE FURTHER POLISHED IN CANISTER #3 **REJECTED TDS WATER** EXITS THE MEMBRANE HOUSING VIA AN RED TUBE AND FLOWS **THROUGH A FLOW RESTRICTOR BALL VALVE** AND **DOWN THE WASTE DRAIN** OF THE LOCATION PREMISES.

MAINTENANCE OF THIS SYSTEM

- 1) THE MAXX DELUXE 4 RO/DI SYSTEM HAS MANY FEATURES, WHICH HELP TO DETERMINE WHAT IN THE SYSTEM NEEDS MAINTENANCE AND WHEN IT NEEDS MAINTENANCE.
- 2) **PRESSURE GAUGES**. THE **FIRST GAUGE** ON THE RIGHT **READS THE WATER SOURCE INLET PRESSURE** OR HOUSE WATER PRESSURE. THE **SECOND GAUGE** READS THE PRESSURE OF THE WATER **PUSHING AGAINST THE THIN FILM COMPOSITE MEMBRANE**. MAKE A NOTE OF THE READING ON #2. THIS IS YOUR NORMAL SYSTEM PRESSURE. THE **PRESSUER READING** ON GAUGE #2 IS LESS THAN THAT OF GAUGE #1 BECAUSE THE SOURCE WATER HAS LOST PRESSURE WHILE PUSHING THROUGH THE PREFILTERING CARTRIDGES IN CANISTERS #1 AND #2. ALSO AFFECTING THE PRESSURE READING ON GAUGE #2 IS A FLOW RESTRICTOR LOCATED ON THE RED REJECTED WATER DRAIN TUBE. IF NOT FOR THIS FLOW RESTRICTOR, THE PREFILTERED WATER WOULD EXERT NEXT TO NO PRESSURE AGAINST THE SYSTEM MEMBRANE AND WOULD JUST EXIT DOWN THE DRAIN RESULTING IN LITTLE IF ANY PURE WATER PRODUCTION. IF **PRESSURE GUAGE #2** READING **FALLS FROM NORMAL**, THAT NEW READING LEVEL INDICATES THAT THE **CARBON BLOCK** IN CANISTER #1 NEEDS REPLACING. THE **SECOND CANISTER** CONTAINS A 5 MICRON CARBON BLOCK. THIS CARTRIDGE SHOULD BE CHANGED AFTER THE SYSTEM HAS PRODUCED **1,500 GALLONS OF PURE WATER**. KEEP A LOG ON APPROXIMATE PURE WATER PRODUCED BECAUSE CHLORINE REMOVAL IS VERY IMPORTANT TO THE LIFE OF THE MEMBRANE AND 1,500 GALLONS IS A GOOD TIME TO CHANGE THE CARBON BLOCK CARTRIDGE. (SEE CLEANING OR CHANGING A CARTRIDGE....SECOND CANISTER). IF **PRESSURE GAUGE #2** READING RISES ABOVE NORMAL, THAT NEW READING LEVEL INDICATES THAT THE **MEMBRANE NEEDS TO BE FLUSHED**. (SEE SECTION ON FLUSHING MEMBRANE).
- 3) **CHANGING OR CLEANING A CARTRIDGE**. THE SYSTEM COMES WITH A **SPANNER WRENCH**. IT LOOKS LIKE A SMALL TENNIS RACKET WITHOUT STRINGS. IT FITS AROUND THE BOTTOM PART OF THE CANISTER SUMP AND SLIDES UP THE SIDES OF THE SUMP UNTIL IT CAN SLIDE UP NO FURTHER. TURN OFF THE WATER TO THE SYSTEM. WHEN FACING THE SYSTEM, USING THE **FIRST CANISTER**, TURN WRENCH **RIGHT TO LEFT** (COUNTER CLOCKWISE TO LOOSEN AND REMOVE THE SUMP). REMOVE CARTRIDGE FROM CANISTER SUMP. RINSE OUT SUMP. REPLACE WITH A CARBON BLOCK. PLEASE NOTE THAT THE CARBON BLOCK HAS A RUBBER WASHER ON EACH END. SPREAD A LITTLE VASOLINE ON THE TOP OF EACH WASHER BEFORE PUTTING THE NEW CARTRIDGE BACK INTO THE SUMP. THIS CARTRIDGE CAN BE PUT IN EITHER END UP. THERE IS NO WRONG WAY. SPREAD VASOLINE OVER THE SURFACES OF THE TWO ORINGS ON THE SIDES OF THE CANISTER SUMP AND SCREW THE SUMP BACK ONTO THE CANISTER HEAD. WITH SPANNER WRENCH, TURN SUMP LEFT TO RIGHT TO TIGHTEN. TURN ON WATER AND CHECK FOR LEAKS. THE **SECOND CANISTER** CONTAINS A CARBON AS WELL. THE REPLACEMENT IS THE SAME AS THE FIRST CANISTER. THE **THIRD CANISTER** CONTAINS THE DI CARTRIDGE. WHEN THE DYE IS GONE FROM THE RESIN AND COLOR HAS CHANGED, REPLACE THIS CARTRIDGE FOLLOWING THE ABOVE PROCEDURES. THE NEW CARTRIDGE HAS ONE RUBBER WASHER ON THE TOP. SPREAD A LITTLE VASOLINE ON THE TOPSIDE OF THIS WASHER BEFORE PUTTING IT IN THE SUMP. SCREW SUMP ONTO CANISTRER HEAD. TURN WATER ON AND CHECK FOR LEAKS.
- 4) JUST AFTER THE RED TUBE EXITS THE MEMBRANE HOUSING, THERE IS A WHITE COLORED DEVICE WITH A RED HANDLE. THIS DEVICE IS A **FLOW RESTRICTOR AND BALL VALVE**

COMBINED AND IS USED IN THE MEMBRANE FLUSHING PROCEDURE. THE THIN FILM COMPOSITE MEMBRANE IN THE HOUSING WILL LAST FOR YEARS IF PREFILTERED WATER IS KEPT FREE OF CHLORINE AND THE MEMBRANE IS FLUSHED WHEN THE CARBON BLOCKS ARE CHANGED.

- A) **FLUSHING THE MEMBRANE.** WHILE IT IS A GOOD IDEA TO FLUSH THE MEMBRANE WHENEVER THE CARTRIDGES ARE CHANGED, IT IS POSSIBLE THAT IT MAY BECOME NECESSARY TO FLUSH THE MEMBRANE BEFORE SUCH CHANGE OF THIS CARBON BLOCK.

IF THE #2 PRESSURE GAUGE RISES FROM ITS NORMAL READING, IT IS AN INDICATION THAT THERE IS A BUILD UP OF PRECIPITATED MATTER ON THE SURFACE OF THE MEMBRANE. SUCH A BUILDUP MAKES IT DIFFICULT FOR WATER TO PASS THROUGH THE MEMBRANE AS BEFORE AND PRODUCTION WILL DROP AS MORE WATER ATTEMPTS TO EXIT VIA THE DRAIN AND INCREASES THE BACK PRESSURE FROM THE FLOW RESTRICTOR ORIFICE. JUST TURN THE RED HANDLE ¼ TURN ON THE FLOW RESTRICTOR SO IT FACES DOWN THE RED LINE INSTEAD OF ACROSS IT. THIS MANEUVER OPENS THE TUBE FULLY BY REMOVING THE RESTRICTION. LEAVE THE HANDLE TURNED FOR 10 MINUTES WHILE THE SYSTEM IS OPERATING AND THE RUSH OF WATER OVER THE MEMBRANE SURFACE WILL FLUSH AWAY THE BUILD UP. TURN RED HANDLE BACK ACROSS THE RED LINE AND THE PRESSURE GAUGE SHOULD RETURN TO A NORMAL READING.

5) **CHANGE THE MEMBRANE.** EVERY YEAR, CHECK THE WATER EXITING YOUR BLUE TUBE. TURN OFF THE SYSTEM. REMOVE YELLOW TUBE FROM THE ACETAL QUICK CONNECT IN THE CENTER OF THE MEMBRANE HOUSING CAP. UNSCREW MEMBRANE HOUSING CAP. BE CAREFUL NOT TO LOSE THE O-RING. WITH PLIERS, GRIP THE PLASTIC ROUND END OF THE MEMBRANE. PULL HARD TO BREAK SEAL. TAKE NEW MEMBRANE AND SPREAD VASOLINE ON END TUBE O-RINGS. ALSO PUT VASELINE ON MEMBRANE HOUSING CAP O-RING. PUSH NEW MEMBRANE INTO HOUSING (2 O-RING TUBE FIRST) WITH PALM OF HAND. YOU WILL FEEL THE TWO O-RINGS HIT THE POST CAVITY AT THE OTHER END OF THE HOUSING. PUSH WITH A LITTLE EXTRA PRESSURE AT THE POINT TO FEEL THE O-RINGS SLIDE INTO THE POST CAVITY. SCREW ON CAP WITH O-RING AND REATTACH THE YELLOW TUBE WITH A HARD PUSH INTO THE QUICK CONNECT.

LIMITED WARRANTY

ENTIRE SYSTEM HAS A LIMITED ONE YEAR WARRANTY THAT INCLUDES BOTH MATERIAL AND WORKMANSHIP. (REPLACEABLES SUCH AS CARTRIDGES, ELEMENTS, AND MEMBRANES ARE NOT COVERED).