

IMPORTANT SAFETY INSTRUCTIONS

The *MS* Line
BY: DM INDUSTRIES

**INSTALLATION AND OPERATING
INSTRUCTIONS**



READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

**THESE INSTRUCTIONS MUST GO TO THE
END USER OF THIS EQUIPMENT.**

1.1 GENERAL INFORMATION

* READ AND FOLLOW ALL INSTRUCTIONS BEFORE OPERATING THE SPA *

1.1.1 INSTALLATION: The spa must be installed in such a manner as to provide drainage of the electrical component compartment. You need to pick a surface that is hard, flat and reasonably level. When properly installed both the wooden skirt and the tub will rest flat on the supporting surface. FAILURE TO DO SO CAN CAUSE THE SKIRT TO BUCKLE OR THE TUB TO TILT AND THE SIDES TO DISTORT. WE RECOMMEND A Poured concrete pad or similar surface. For the most enjoyment, pick a location that is easily accessible and won't attract dirt and debris into the spa. Keep in mind that trees and shrubs will shed. Your spa will be more energy efficient if it is sheltered from the weather.

1.1.2 SUPPLYING POWER TO THE SPA: All MT series spas with the exception of the MAXIMA are equipped with an MT10 equipment pac.

NOTE: ALL MT10 SERIES PACS ARE SHIPPED FROM THE FACTORY SET FOR 50 AMP 220 VOLT OPERATION. IF YOU ARE OPTING TO OPERATE THE MT10 PAC ON 20 AMP 110V, NOTIFY YOUR DEALER SO THE CONVERSION CAN BE PERFORMED AND THE POWER CORD INSTALLED.

A) MT10 equipment: This equipment pac is convertible from 110 volts to 220 volts which will effect the heater utilization only. On 110 volt 20 amp service the heater is rated at 1.5 KW which will heat the water approximately one to three degrees per hour on low speed function only. On 220 volt 50 amp service the heater is rated at 6 KW which will heat the water aproximatly seven to ten degrees per hour and will do so on all functions except BLOWER only.

1) MT10 110 volt: After you have selected your level surface and have placed the spa in the position you desire, be sure the power cord provided with the spa will reach your 20 amp grounded receptacle. CONNECT ONLY TO A GROUNDED, GROUNDING TYPE RECEPTACLE THAT IS A MINIMUM OF FIVE FEET AWAY FROM ANY PART OF THE SPA. The spa comes with a heavy duty power cord (NO.12 wire) and is designed to plug into a 20 amp 110 volt dedicated circuit (for the spa only). Should this cord fail to reach the receptacle, it will be necessary to have an electrician run a dedicated 20 amp 110 volt grounded receptacle to an area that the spa cord will reach. DO NOT USE AN EXTENSION CORD, DOING SO WILL VOID WARRANTY!

2) MT10 220 volt: This unit must be hardwired 50 amp 220 volt in accordance with all applicable local and national electrical codes (NEC), by a licensed

electrical contractor. All specifications in section 2.2.2 of this manual must be followed.

B MT15 MAXIMA MODEL ONLY: This unit can only be operated on a 50 amp 220 volt service. The service must be hardwired in accordance with all local and national electrical codes. All specifications in section 2.2.2 of this manual must be followed.

1.1.3 A pressure wire connector is provided on the pump, to permit connection of a bonding wire between this point and any metal equipment, metal enclosure of electrical equipment, metal water pipe or conduit within five feet of the spa as needed to comply with local requirements. Bonding wire must be at least a NO.8 AWG 98.4 (2mm) solid copper wire.

1.1.4 GROUND FAULT CIRCUIT INTERRUPTER (GFCI): Both the MT10 and the MT15 equipment pacs are provided with a ground fault interrupter that is located on the front panel of equipment inside of the access door. After the spa is filled with water and before use of the spa, with power to the spa turned "ON", push the "test" button on the ground fault interrupter, the spa should turn "off". Push the "reset" button. When the reset button is pressed the spa should turn on and operate as normal. If the GFCI fails to operate in this manner DO NOT USE THE SPA. Disconnect the power to the spa and call for service. There is the possibility of ground current flowing, indicating the possibility of an electrical shock.

1.2 SAFETY AND HEALTH INFORMATION

- 1 Always enter and exit the spa slowly and cautiously. Wet surfaces will be slippery.
2. Never use a spa while under the influence of alcohol, anticoagulants, antihistamines, vasoconstrictor, vasodilator, stimulants, hypnotics, narcotics, or tranquilizers.
3. Everyones body and circulatory system is different and responds to hot water immersion in different ways. For this reason the amount of time spent safely in your hot tub or spa will vary. Most people in good health find the temperature of 100 degrees to be comfortable and limit soaking time to 10-20 minutes. Prolonged exposure may result in nausea, dizziness or fainting. Regardless of your age, health and medical history, you should consult your physician for recommended usage.
4. Pregnant women and persons suffering from heart disease, diabetes, high or low blood pressure should not enter the spa without prior medical consultation and permission from their doctor.
5. It is not recommended to use the spa alone or to allow children to use unattended.
- 6 It is recommended that the following emergency phone numbers be listed at the nearest telephone: Physician, hospital, ambulance and police.

- 7 Excessive spa temperature is dangerous. Always check water with a thermometer. The maximum temperature of the spa water shall never exceed 104 degrees fahrenheit (40 degrees centigrade). Excess temperatures may cause hyperthermia. The symptoms of hyperthermia and first aid information are as follows:

HEAT STROKE: The most susceptible people are the very young, the elderly, alcoholics, and most people under the influence of drugs, medication, and alcohol.

SYMPTOMS: Hypothermia causes loss of salt, sweating, ordinary dizziness, headache, dryness of the mouth, nausea, faintness and or unconsciousness, convulsions, flushed appearance of skin and rapid pulse and or weak shallow breathing.

TREATMENT: Place person on their back with their head slightly tilted. Apply wet cloths or ice packs to the head and wrap body in a sheet and pour on small amounts of water or place in cool shower or tub. Get medical attention as soon as possible.

* SAVE THESE INSTRUCTIONS *

- 1.3 **ELECTRICAL SAFETY FEATURES:** Your spa contains advanced safety and self protective devices. None-the-less, your spa must be properly installed to insure dependable and safe usage. Should you have any questions regarding your spa installation, please contact your dealer or your local building department. In the event they are unable to answer your questions, you may direct your inquires to DM Industries.

- 1.3.1 **GROUNDING:** A common ground is provided to the spa from the source. On 120 volt installations, it is mandatory that the electrical connection is made to a grounded (grounding type) 20 amp receptacle as shown in FIG. ONE. This is configured as a three hole polarized electrical outlet. If your outlet is not so configured, it must be replaced with one that is by a qualified electrical contractor. In addition, your spa is equipped with a secondary bonding type ground. A pressure wire connector is provided on the pump located inside the access door to permit connection of a bonding wire between this point and any ground, metal equipment, metal enclosure of electrical equipment, metal water pipe or conduit within five feet of the spa. A copper clad grounding that is five feet long and within five feet of the spa may also be used. The bonding wire must be at least NO.8 awg (98.4 2mm) solid copper wire. Check your local codes for the specific requirements in your area.

- 1.3.2 **GROUND FAULT CIRCUIT INTERRUPTER (GFCI):** Your MT equipment pac is provided with a GFCI located on the front face panel of equipment located inside the access door. After the spa is filled and before use of the spa, with the power

turned "ON", push the "test" button (BLACK) on the GFCI, the spa should turn "OFF" and the reset button (RED) should pop out. Push the "reset" button (RED). When reset button is pressed in the spa should turn "ON" and the button should remain in. If the GFCI fails to operate in this manner, there is ground current flowing indicating the possibility of an electrical shock. Disconnect the power to the spa immediately and call for service. DO NOT USE THE SPA UNTIL THE CONDITION HAS BEEN IDENTIFIED AND CORRECTED.

- 1.3.3 HIGH LIMIT TEMPERATURE RESET: The high limit reset button (silver) is located on the top center of the heater housing by the red heater indicator light. This button is designed to trip in the event the water becomes too hot. If this occurs the high limit will trip and discontinue power to the heater element. The high limit can only be reset manually by depressing when the water temperature has cooled below 80 degrees. When the high limit is reset the heater will begin to operate as normal (Red heater indicator light "ON"). The high limit is designed to protect against over heating in the event the thermostat should fail or in the unlikely event the heater should remain on without proper water flow.
- 3.4 20 AMP FUSE: All MT series equipment pacs are furnished with 20 amp fuses that are designed to protect the system in the event of a high amperage draw. Should the 20 amp fuse blow, replace with a 20 amp class "G" SLC 20 fuse. Should it continue to blow call for service to identify and correct the problem.
- 2.1 LOCATING YOUR SPA: Your spa dealer is your best resource for determining how best to install your new spa, what electrical power requirements are necessary and what site preparation must be accomplished. The spa must be installed in such a manner as to provide drainage of the electrical component compartment. You need to pick a surface that is hard, flat and reasonably level. When properly installed both the wooden skirt and the tub will rest flat on the supporting surface. FAILURE TO DO SO CAN CAUSE THE SKIRT TO BUCKLE OR THE TUB TO TILT AND THE SIDES TO DISTORT. WE RECOMMEND A Poured concrete pad or similar surface. For the most enjoyment, pick a location that is easily accessible and won't attract dirt and debris into the spa. Keep in mind that trees and shrubs will shed. Your spa will be more energy efficient if it is sheltered from the weather.
 - 2.1.1 SITE SELECTION: Your chosen site should include a complete analysis of the access route. Attention should be given to fence heights, gates, door clearances, electrical/cable lines etc. Whether installing your spa indoors or outdoors, it is ultimately your responsibility to ensure that all local and municipal codes are complied with. For outdoor installations, consider sunlight exposure, views, accessibility, lot lines privacy, wind direction, plants and

child safety prior to the laying of your foundation

2.1.2 FOUNDATION: Your spa must be located on a suitable, level foundation. The surface must be firm and capable of supporting 90-100 LBS/SQ.FT. Be sure to allow for adequate drainage. If you install your spa on an elevated deck or indoors with a suspended floor, be sure to consult with your contractor or a structural engineer to insure that you have sufficient load bearing capacity. Recessing the spa is not recommended. A VITA portable spa is designed to sit on a surface with all wood visible and capable of being portable if necessary. YOU MUST PERMIT SERVICE ACCESSIBILITY. FAILURE TO DO SO MAY RESULT IN REPAIR EXPENSES THAT ARE NOT COVERED BY YOUR WARRANTY!

2.2 ELECTRICAL REQUIREMENTS: All MT series spas, with the exception of the MAXIMA model, are equipped with an MT10 equipment pac. The MT10 pac is capable of operating on either 110 volt 20 amps or 220 volts 50 amp service. The difference between 110 or 220 volt service is the amount of heat the heater produces and at which selection the heater will operate. On 110v 20amp the heater is rated at 1.5 KW which produces approximately 5000 BTU'S (1-3 degrees/hour) of heat and only will operate on the low speed (Filtration) function. When operated on 220V 50 amp service, the heater produces approximately 20000 BTU'S (7-10 degrees/hour) of heat and will operate on all functions except blower only function. The MAXIMA series spa is equipped with a MT15 equipment pac which can only be operated on 220v 50 amp service.

2.2.1 MT10 110 VOLT 20 AMP SERVICE: The MT10 110v pac comes with a heavy duty (NO.12) power cord. The power cord is designed to be the ONLY power cord connection between the equipment and the 20 amp 110v dedicated outlet. NEVER USE AN EXTENSION CORD! Extension cords create resistance and will cause the equipment to operate on insufficient levels of voltage. Low voltage causes amperage to increase which damages the equipment. THE USE OF AN EXTENSION CORD WILL VOID WARRANTY! After you have selected your level surface and have placed the spa in the position you desire, be sure the power cord provided with the spa will reach your 20 amp grounded receptacle. CONNECT ONLY TO A GROUNDED, GROUNDING TYPE RECEPTACLE THAT IS A MINIMUM OF FIVE FEET AWAY FROM ANY PART OF THE SPA. Should this cord fail to reach the receptacle, it will be necessary to have an electrician run a dedicated 20 amp 110 volt grounded receptacle to an area that the spa cord will reach. Once the electrical inspection has been completed and any deficiency corrected you are ready to move on to section

NOTE: THE MT10 SERIES PAC IS SHIPPED FROM THE FACTORY SET FOR 50AMP 220 VOLT. IF IT IS GOING TO BE OPERATED ON 20AMP 110VOLT SERVICE, THE CONVERSION AND THE INSTALLATION OF THE POWER CORD MUST BE PERFORMED BY YOUR DEALER.

2.2.2 MT10 220 VOLT 50 AMP SERVICE: The MT10 220v 50 amp system must be hardwired from the source to the equipment pac by a qualified electrical contractor in accordance with all local and national electrical codes. A dual common trip 50 amp breaker must be installed at the household breaker box. This service must be dedicated to supply power only to the spa. Four wires (COPPER CONDUCTOR ONLY) must be pulled: TWO LINE VOLTAGE, ONE NEUTRAL, ONE GROUND the size of which will be determined by the distance of the spa to the main breaker panel and also what type of wire that is used (e.g.#8 THHN up to 50 FT). The use of a sub-panel is strongly recommended. The subpanel should be within sight of, but no closer than five feet away from any part of the spa.

2.2.3 MT15 220 VOLT 50 AMP SERVICE (MAXIMA MDL): The MT15 series equipment pac can only be operated on 50 amp 220v. This equipment pac must be hardwired from the source to the equipment pac by a qualified electrical contractor in accordance with all local and national electrical codes. A dual common trip 50 amp breaker must be installed at the household breaker box. This service must be dedicated to supply power only to the spa. Four wires (COPPER CONDUCTOR ONLY) must be pulled: TWO LINE VOLTAGE, ONE NEUTRAL, ONE GROUND the size of which will be determined by the distance of the spa to the main breaker panel and also what type of wire that is used (e.g.#8 THHN up to 50 FT). The use of a sub-panel is strongly recommended. The sub-panel should be within sight of, but no closer than five feet away from any part of the spa.

NOTE: Either series, MT10 or MT15 equipment pacs can be set up on 220v 30amp service if necessary. When using 30amp 220v the heater will be 6KW but it will only operate on the low,filtration speed. Any conversion must be made by a authorized service agent or a qualified electrical contractor. ALL CONVERSION INFORMATION ON THE WIRING DIAGRAM MUST BE FOLLOWED.

* OPERATING INSTRUCTIONS *

3.1 GETTING YOUR SPA READY TO USE: When all electrical requirements are met you are ready to fill your VITA spa. Please observe the following steps:

STEP ONE: Keep all electrical power to the spa turned "OFF"
STEP TWO: Make sure the thermostat knob is rotated to the "OFF" position.

- STEP THREE: Make sure the two gate valves (TEE HANDLE) located at the pump inlet and the heater outlet are in the open position (TEE HANDLE PULLED UP). Also make sure all the jets are open (turned counter-clockwise).
- STEP FOUR: Make sure drain valve (YELLOW HOSE BIB) that is located inside access door by the filter bucket is tightly closed.
- STEP FIVE: Using a garden hose, fill the spa with water up to the water level line (approx. 4 inches from top). DO NOT PERMIT THE WATER LEVEL TO DROP BELOW THE SKIMMER OPENINGS OF THE FILTER BUCKET.
- STEP SIX: WAIT approximately 15 minutes and inspect water connections and perimeter of spa for any leaks or puddles of water. If there are any leaks, call for service if it cannot be readily corrected, i.e: connections, unions, etc.

STARTING YOUR SPA:

- STEP ONE: Turn power to the spa "ON".
- STEP TWO: Press the "TEST" button on the GFCI, the spa should be inoperative. Then press the "RESET" button, the spa should turn on.
- STEP THREE: Set the timer selection switch to the "DOWN" position and sequence the selection button through the four functions at least once, then returning to the low speed function.
- STEP FOUR: Rotate the thermostat knob to the hot position. Leave the spa running until the desired temperature is achieved.
- STEP FIVE: Set the timer selection switch to the center position (timer), set the time of day and the amount of filtration/heat time desired.
- STEP SIX: Add chemicals according to manufactures directions.

FEATURES AND FUNCTIONS: The MT series spas are equipped with a four function air switch that is activated by the selection button that is located on the spa shell along with the light button. When the selection button is depressed the switch will sequence through its functions as follows:

- * SELECTION ONE: Low speed pump which is controlled by the filtration time clock (SEE TIMER OPERATION). When the low speed is "ON", the heater will operate if heat is being called for.
- * SELECTION TWO: High speed pump (JETS) only. If the equipment is an MT10 or MT15 equipment pac wired 220v 50amp the heater will operate as needed. On 110v 20amp service (MT10), the heater will be "OFF".
- * SELECTION THREE: Blower only. The heater will not operate regardless of how the spa is wired.
- * SELECTION FOUR: High speed pump and blower. The heater will only operate if the spa is wired for 220v 50amp service.

The light air button switches the light "ON" or "OFF".
NOTE: Always sequence the four function switch back to SELECTION ONE when you are finished using your spa.

- 3.3.1 TIMER OPERATION: The time clock controls the low speed filtration pump only. You will still have access to the remaining functions regardless of the timer setting by depressing the selection button. The timer consists of the following operational items you should be familiar with in order to understand the use and setting of it:
- (1) TIMER SELECTION SWITCH: This switch determines how the timer will operate.
 - (A) OFF POSITION(UP): The low speed pump is permanently "OFF".
 - (B) TIMER CONTROL POSITION (CENTER): The timer will start and stop the low speed pump at the times you selected.
 - (C) MANUAL POSITION(DOWN): The low speed pump is permanently "ON" regardless of the timer setting. This position is used when initially heating the spa and also for FREEZE protection.
 - (2) CURRENT TIME INDICATOR ARROW: When setting the time of day, turn the outer ring of the time clock **CLOCKWISE ONLY** until you align the indicator arrow with the number and the AM/PM setting on the face of the timer that corresponds with the actual time of day.
 - (3) TIMER SELECTION PINS: These pins operate the time clock ON/OFF when the timer selection switch is in the center position. When the pin is slid in towards the center of the timer face, the low speed pump is "ON". When the pin is slid towards the outer ring of the timer face, the low speed pump is "OFF".

SETTING THE TIME CLOCK: After you have set the timer to the actual time of day, set the amount of "RUN" time you would like to have the spa operate (FILTRATION/HEAT) and at which times of the day/night by sliding the proper pins in towards the center of the face. Each pin represents 15 minutes. If you wanted to have the spa "RUN" from 1 PM to 5 PM you would need to slide the pin in at 1 PM, at 5 PM and all the pins in between in order for the low speed pump to operate during that time.

- 3.3.2 THERMOSTAT SETTING: The thermostat is located on the heater which is located inside the access door. Turn the thermostat to desired setting. We recommend starting at the 3/4 of knob rotation. When the low speed pump is operating, the heater will turn on and begin to heat. The red heater indicator light located near the thermostat knob on the heater will illuminate when the heater is operating. Check the water temperature with a thermometer until you find a temperature that is comfortable. At that point, if the low speed pump is on and the heater remains on (HEATER INDICATOR LIGHT ON), rotate the thermostat knob until the red heater indicator

light goes off. Your spa will maintain the temperature at this point, as long as the low speed pump is given adequate "RUN" time.

- 3.4 JET OPERATION: Every MT series spa contains at least three directional massage jets. These jets can be adjusted for both pressure and direction. The direction of the water flow may be adjusted by rotating the "EYEBALL" to whatever position is desired. The amount of water pressure can be adjusted by rotating the entire outer rim of the jet itself. Turning the jet clockwise decreases the pressure. Turning the jet counter-clockwise will increase the pressure. Also contained in the spa is a rotational massage jet. This jet can be adjusted for pressure in the same manner as the directional massage jet, but it can not be adjusted for direction.

NOTE: The jets cannot close completely. You will always have some amount of pressure, however slight.

CAUTION: CLOSING MORE THAN TWO JETS AT A TIME WILL RESTRICT THE WATER FLOW AND MAY CAUSE YOUR HEATER AND PUMP TO OVERHEAT.

- 3.4.1 AIR CONTROL OPERATION: The air control, when it is turned "ON", takes in air from the outside and mixes it with the jet water to give more pressure. When the spa is not in use, the air controls should be in the "OFF" position.

- 3.4.2 AIR FINGER MASSAGE JETS: These jets are located in the seats throughout the spa. They will operate when the BLOWER function is on. The jets generate thousands of tiny air bubbles that follow your body contour and provide you with a overall soothing and relaxing massage.

4.1 GENERAL SPA MAINTENANCE

- 4.1.1 WOODEN SKIRT: Depending on what type of exposure the spa has to the elements will determine the amount of maintenance that will be needed to keep the wooden skirt looking new. It is recommended that a clear wood preservative be used at least once a year and should be increased depending on the type of exposure. The use of varnish, shellac or urethane type finishes are NOT recommended. These types of finishes have a tendency to peel, flake and yellow. Please ask your dealer for assistance if you have any type of questions.

- 4.1.2 SPA COVER: The spa cover should be cleaned with mild soap, water and soft bristle brush. Rinse thoroughly to avoid any soap residue being left on its surface. A conditioner like saddle soap is recommended to keep the outer surface soft, pliable, and resistant to UV rays. Avoid dragging the cover when removing it from the spa. Never allow anyone to sit on the cover.

4.1.3 ACRYLIC SURFACE: The acrylic surface should be cleaned, when needed, with a soft cloth and a non-abrasive liquid cleaner. Avoid using cleaners that contain a high soap residue, which may cause excessive sudsing in the spa. If you are uncertain of which type of cleaner should be used, consult your dealer.

4.1.4 FILTER: The spa filter, along with proper chemical usage, is critical to maintaining clean and sanitary water. High water temperature accelerates the release of body oils into the water. As the water is being filtered, these oils along with any other suspended material will become entrapped within the filter medium. Prolonged periods without cleaning of the filter will restrict the flow of the water. The amount of use, the user load, and the water temperature, will determine the frequency of recommended cleanings. Using a garden hose will remove the larger debris on the filter but it will not dissolve the body oils. Filter cleaners are available from your dealer. The filter also may be cleaned, if necessary, with a solution of one cup dishwasher detergent with five gallons of warm water. Let the filter soak overnight, then rinse thoroughly and let dry before using again. Never run the spa without the filter. A spare filter is a good investment for uninterrupted use of the spa.

4.2.1 DRAINING YOUR SPA: When draining your spa, please observe the following steps:

STEP ONE: Turn all power to the spa "OFF".

STEP TWO: Remove the filter and connect a garden hose to the yellow drain valve that is located under the filter bucket in the equipment area. Place the other end of the hose to an area that will accommodate the draining water without the possibility of flooding or causing damage to trees, grass or flowers. NOTE: let your chemical levels drop before emptying the water from the spa.

STEP THREE: Turn the black knob on the top of the yellow drain valve to begin draining the spa water. NOTE: There will be some residual water in the footwell of the spa. This may be removed with a sponge or a wet/dry shop vacuum.

4.4.2 FREEZE PROTECTION: In areas of the country where the temperature drops below freezing, it is necessary for you to place the timer selection switch into the manual (DOWN) position and keep the thermostat on a warm setting to avoid the possibility of damaging any plumbing or equipment.

4.2.3 DRAINING YOUR SPA FOR THE WINTER: Observe steps one thru three in section 4.2.1, along with the following:

A) Remove the drain plug on the pump housing.

- B) If you have a wet/dry shop vacuum, residual water may be removed by placing the vacuum hose over the jet nozzles and BLOWING (NOT VACUUMING) the water thru the drain plug on the pump housing.
- C) You can remove any of the remaining water in the air blower line by temporarily turning the blower on for a few seconds.
- D) Store the filter and cover the spa.

NOTE: The cover is not intended to support any excessive amount of weight such as snow and/or ice.