WEST COAST SPAS

OWNER'S MANUAL

Whatcom, Salinas,

Santiam, Trillium, Newport,
Octagon, McKenzie

OWNER'S MANUAL

Congratulations on the purchase of your new spa! Thank you for choosing a spa built by West Coast Spas. Please read the Owner's Manual before installing and using your spa.

Please save your original sales receipt for reference in case of a future warranty claim. Failure to install, use or maintain the spa in compliance with the this owner's manual could result in loss of warranty coverage.

We constantly strive to offer the finest spas available, therefore modifications and enhancements may be made which affect the specifications, illustrations and/or instructions contained herein.

OWNERSHIP RECORD

Name_____

Address_____

City_____ State_____ Zip/Postal Code_____

Date Purchased_____/_____/_____

Model_____ *Serial #_____

Dealer Name_____ Phone #_____

Service Tech Rep_____

*Your spa's serial number is located on the spa system pack inside the equipment panel.

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WEST COAST SPAS

SAFETY INSTRUCTIONS

Important Safety Instructions

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

WARNING: To reduce the risk of injury, do not permit children to use this product unless they are supervised at all times.

Your new 220 volt spa requires a dedicated 50 AMP GFCI service to be mounted 5 to 10 feet away from your spa depending on your current City or County and States codes per National Electrical Codes (NEC) All wiring must be #6 AWG copper wires. This will include a black and red wire for incoming power from GFCI a white wire for neutral, and a green wire for ground to spa controls.

NOTE: This may require a licensed electrician to upgrade your standard receptacle and/or circuit breaker. All 110 volt spas require a DEDICATED 20 AMP GFCI SERVICE. Do not use extension cords.

D**ANGER - RISK OF ACCIDENTAL DROWNING**: Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use the spa unless they are closely supervised at all times. Keep the spa cover on and locked when not in use.

DANGER - RISK OF INJURY: The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible. Never operate spa if the suction fittings or filter baskets are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting.

DANGER - RISK OF ELECTRIC SHOCK: Install spa at least five (5) feet (1.5m) away from all metal surfaces. Always make sure that the spa is wired by a qualified, licensed, and insured electrician. Do not permit any electrical appliances, such as a lights, telephones, radios, televisions, and etc., within five feet of spa, unless such appliances are built-in by the manufacturer. Never attempt to operate any electrical device from inside the spa.

WARNING — TO REDUCE THE RISK OF INJURY:

Always enter and exit a spa slowly. Do not use the spa alone.

Before entering a spa, measure the water temperature with an accurate thermometer, since the tolerance of water temperature-regulating devices varies +1- 5° F (2° C).

The spa water should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds ten minutes.

Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should consult their physician prior to spa usage.

The use of alcohol, drugs or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Persons using medications should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

SAFETY INSTRUCTIONS

HYPERTHERMIA

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F (37°C).

SYMPTOMS OF HYPERTHERMIA INCLUDE:
Dizziness - Fainting - Drowsiness - Lethargy - Increase in Internal Body Temperature

EFFECTS OF HYPERTHERMIA INCLUDE:
Unawareness of Impending Hazard - Failure to Perceive Heat
Failure to Recognize the Need to Exit Spa - Physical Inability to Exit Spa
Fetal Damage in Pregnant Women - Unconsciousness Resulting in Danger of Drowning

WARNING: The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia. Persons on medication should consult with their physician before entering the spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.

WARNING: People with open sores or infections should not use the spa. Warm and hot water temperature may allow the growth of infectious bacteria if not properly disinfected.

IMPORTANT SAFETY INSTRUCTIONS

When using this electrical equipment, basic safety precautions should always be followed, including the following:

READ AND FOLLOW ALL INSTRUCTIONS

A green colored terminal or a terminal marked G, GR, Ground, Grounding is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment. * IEC Publication 417, Symbol 5019.

At least two lugs marked "BONDING LUGS" are provided on the external surface or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub or spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.

All field-installed metal components such as rails, ladders, drains or other similar hardware within 3 m of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

SAVE THESE INSTRUCTIONS.

WARNING: CHILDREN SHOULD NOT USE SPAS OR HOT TUBS WITHOUT ADULT SUPERVISION and AVERTISSEMENT: NE PAS LAISSER LES ENFANTS UTILISER UNE CUVE DE RELAXATION SANS SURVEILLANCE

WARNING: DO NOT USE SPAS OR HOT TUBS UNLESS ALL SUCTION GUARDS ARE INSTALLED TO PREVENT BODY AND HAIR ENTRAPMENT and AVERTISSEMENT : POUR EVITER QUE LES CHEVEUX OtJ UNE PARTIE DU CORPS PUISSENT ETRE ASPIRES, NE PAS UTILISER UNE CUVE DE RELAXATION SI LES GRILLES DE PRISE D'ASPIRATION NE SONT PAS TOUTES EN PLACE

WARNING: PEOPLE USING MEDICATIONS AND/OR HAVING AN ADVERSE MEDICAL HISTORY SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB and AVERTISSEMENT: LES PERSONNES QUI PRENNENT DES MEDICAMENTS OU ONT DES PROBLEMES DE SANTE DEVRAIENT CONSULTER UN MDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION

WARNING: PEOPLE WITH INFECTIOUS DISEASES SHOULD NOT USE A SPA OR

HOT TUB and AVERTISSEMENT: LES PERSONNES ATTEINTES DE MALADIES INFECTIEUSES NE DEVRAIENT PAS UTILISER UNE CUVE DE RELAXATION

WARNING: TO AVOID INJURY EXERCISE CARE WHEN ENTERING OR EXITING THE SPA OR HOT TUB and AVERTISSEMENT: POUR EVITER DES BLESSURES, USER DE PRUDENCE EN ENTRANT DANS ONE COVE DE RELAXATION ET E SORTANT

WARNING: DO NOT USE DRUGS OR ALCOHOL BEFORE OR DURING THE USE OF A SPA OR HOT TUB TO AVOID UNCONSCIOUSNESS AND POSSIBLE DROWNING and AVERTISSEMENT: POUR EVITER L1EVANOUISSEMENT ET LA NOYADE EVENTUELLE, NE PRENDRE NI DROGUE NI ALCOOL AVANT D'UTILISER UNE CUVE DE RELAXATION NI QUAND ON StY TROUVE

WARNING: PREGNANT OR POSSIBLY PREGNANT WOMEN SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB and AVERTISSEMENT: LES FEMMES ENCEINTES, QtJE LEUR GROSSESSE SOIT CONFIRMEE OtJ NON, DEVRAIENT CONSULTER UN MEDECIN AVANT D'UTILISER UNE COVE DE RELAXATION

WARNING: WATER TEMPERATURE IN EXCESS OF 38°C MAY BE INJURIOUS TO YOUR HEALTH and AVERTISSEMENT: IL PEUT ETRE DANGEREUX POUR LA SANTE DE SE PLONGER DANS DE L'EAU A PLUS DE 38°C

WARNING: BEFORE ENTERING THE SPA OR HOT TUB MEASURE THE WATER TEMPERATURE WITH AN ACCURATE THERMOMETER and AVERTISSEMENT: AVANT D'UTILISER ONE CUVE DE RELAXATION MESURER LA TEMPERATURE DE L1EAU A L'AIDE D'UN THERMOMETRE PRECIS

WARNING: DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE and AVERTISSEMENT: NE PAS UTILISER ONE CUVE DE RELAXATION IMMDIATEMENT APRES UN EXERCICE FATIGANT

WARNING: PROLONGED IMMERSION IN A SPA OR HOT TUB MAY BE INJURIOUS TO YOUR HEALTH and AVERTISSEMENT: L'UTILISATION PROLONGEE D'UNE COVE DE RELAXATION PEUT ETRE DANGEREUSE POUR LA SANTE WARNING: DO NOT PERMIT ELECTRIC APPLIANCES (SUCH AS A LIGHT, TELEPHONE, RADIO, OR TELEVISION) WITHIN 1.5 M OF THIS SPA OR HOT TUB and AVERTISSEMENT : NE PAS PLACER D'APPAREIL ELECTRIQUE (LUMINAIRE, TELPHONE, RADIO, TELEVISEUR, ETC) A MOINS DE 1.5 M DE CETTE COVE DE RELAXATION

CAUTION: MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER' S INSTRUCT ION and ATTENTION: LA TENEUR DE LEAU EN MATIERES DISSOUTES DOIT ETRE CONFORME AUX DIRECTIVES DU FABRICANT.

INSTALLATION INSTRUCTIONS

Support Requirements

Your new spa must be placed on a uniform firm, flat and level surface.

Concrete Pad: We recommend a 4" thick concrete pad at least the size of your spa.

Deck: If you are placing your spa on a deck please make sure the deck can support the full

weight of your spa when it is filled with water plus any people using the spa

(approximately 4500 Ibs).

Other: A 6" thick bed of gravel may also be used. The gravel must be enclosed with 2x6 pressure treated and rot resistant wood with cross supports through the center.

Electrical Requirements

All electrical installation MUST be accomplished by a qualified and licensed electrician in accordance with the National Electric Code (NEC) Article 680 and with any local codes effective at the time of installation.

110 VOLT INSTALLATION INFORMATION

Always Follow Applicable Local, State, Federal Codes and Guidelines.

Use only a dedicated electrical line with a 20-amp breaker.

Do not use an extension cord.

Always use a weatherproof/covered receptacle.

Your spa must be located at least 5’ away and within 10’ of receptacle

Do not bury the power cord.

A damaged cord must be replaced before next usage.

All 110-volt spas must have a GFCI. This can either be a 20 Amp GFCI receptacle or a GFCI cord and plug kit (CKIT110).

To test the GFCI plug version see the GFCI instructions.

o If the GFCI should turn off (trip) while the spa is in use, press the reset button. If the GFCI will not reset, unplug the GFCI and call your Dealer or West Coast Spas for service. DO NOT USE SPA.

220 VOLT INSTALLATION INFORMATION

All 220-volt spas are required to have a GFCI breaker and should only be wired by a licensed electrician.

Always Follow Applicable Local, State, Federal Codes and Guidelines.

Your new Deluxe line 220 volt spa requires a dedicated 50 AMP GFCI service with four #6 AWG copper wires. A Economy line 220 volt spa requires a dedicated 50 AMP GFCI service with four #6 AWG copper wires This will include a black and red wire for incoming power, a white wire for neutral, and a green wire for ground.

Please note that this is the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

SPA START UP

Filling and Powering-up Your Spa:

Once the spa is placed on an approved surface and is connected to the correct electrical service, inspect all plumbing connections in the equipment area of your spa. These connections may have loosened during shipment.

Open all gate valves or slice valves in the equipment area. These are sections of piping near the equipment such as pumps and electrical box that have a handle sticking out of them.

NOTE: Before operating the spa these valves must be in the up or open position.

Remove the floating weir, the filter basket, and cartridge from the skimmer filter canister.

Place a garden hose into the canister and continue filling your spa 4 to 6 inches over the filter.

Once the water is at the correct level inspect all plumbing connections and lines for any sign of water leaks.

Turn on the power at the GFCI breaker. The spa will perform a diagnostic check, and power up in 30 seconds. NOTE: Ensure 110 volt spas are connected to the proper electrical outlet.

All Digital spas will automatically operate at filter speed and continue heating until the spa water temperature reaches 100°F. (This is the default temperature).

Re-install filter and filter basket into skimmer/filter canister.

The spa is now ready for use. For operation instructions see the user's manual for your equipment provided for you in the equipment area.

IMPORTANT: Be careful not to over tighten plumbing fittings. Never run spa with gate valves closed or without water circulating for long periods of time. Never fill your spa with soft water. Soft water makes it impossible to maintain the proper water chemistry and may cause the water to foam and ultimately harm your spas finish and void your warranty.

Filtration Settings and Recommendations:

Operating your new spa equipped with an electric heater correctly will ensure efficient operation. Please read and follow all instructions included in your specific equipment user manual which is provided for you in your spa equipment packet.

Your spa has been programmed to filter for 2 hours every 12 hours which is the recommended 4 hours per day. If you would like to change the frequency please see the equipment manual to adjust the cycle. Set spa to run off peak hours.

NOTE: Allowing the water temperature to lower more than 10 degrees below desired usage temperature and reheating prior to usage will cause the heater to operate longer than it normally would to maintain the desired temperature.

SPA MAINTENANCE

Your new spa is constructed to the highest standards and is capable of providing many years of trouble-free use. However, because heat retentive materials are utilized to insulate the spa for efficient operation, an uncovered acrylic spa surface directly exposed to sunlight and high temperatures for an extended period is subject to permanent damage. Damage caused by exposing the spa to this abuse is not covered by warranty. We recommend that you always keep the spa full of water when it is exposed to direct sunlight and that you keep the insulating cover in place at all times when the spa is not in use.

It is very important to keep the spa covered when not in use for the following reasons:

Heating efficiency - covered spas use less electricity in maintaining your set temperature.

Protection - the cover protects your spas finish from the suns ultraviolet rays which can cause delaminating and bubbling of the acrylic.

Prevents accidental drowning - the cover prevents children from falling in and drowning.

Warranty coverage - covering your spa is mandatory to maintain warranty coverage.

Your new spa has also been engineered with high-powered water pump(s) that pushes water through various therapy jets, which will relax even the tightest of muscles.

The following operating and maintenance instructions are very important and must be followed carefully. With the proper care and maintenance, your spa will provide you with years of satisfaction and performance. The filtering of your spa is very important; this alone will cut down cleaning time and use of excess chemicals. We recommend that your spa filters no less than 8 hours a day.

The filter cartridge needs to be cleaned on a regular basis. This is very simple and only takes a few minutes. The result is increased water clarity and equipment longevity. We recommend you use a filter cleaner to thoroughly clean your filter cartridge every 2 or 3 weeks.

The spa water level is very important to the operation of your spa. If the water level is too low or too high, your spa won't run or clean properly. The water level should be to the middle of the "skimmer area" when no one is in the water. If water is splashed out over the sides during use it is necessary to add water to maintain the correct water level.

Keep all cabinet panels screwed into place around the spa. Do not use spa if a panel is removed and electrical equipment is exposed. Water splashed over the edge of the spa can damage the equipment and can cause harm. Damaging equipment with water voids the warranty.

We recommend that your spa water be changed every six (6) months or more frequently with heavy use. When empty, your spa should be cleaned with a non-abrasive cleaner and rinsed thoroughly. We also recommend cleaning all the hoses and pipes of your spa between water changes.

Before draining your spa make sure to turn off the power at the breaker.

When filling your spa, always fill through the skimmer filter canister to reduce the amount of air bubbles. Only use regular tap water. DO NOT USE SOFTWATER.

SPA MAINTENANCE

FILTER MAINTENANCE

Your spa is equipped with a micron polyester filter cartridge. With care, this filter will maintain clear water for you enjoyment for up to one year. As the flow of water goes through the filter, dirt and debris is removed and accumulated in the filter cartridge. As the filter cartridge accumulates minerals, dirt and debris, water flow is lessened and jet performance is reduced. This can cause your spa to run or heat improperly. Clean your filter regularly and replace as needed. The filter cartridge should be cleaned at least once a month. For heavily used spas it is recommended to clean your filter every two weeks.

Filter Cleaning:

Turn the power off at the breaker.

Remove the filter cover (If equipped).

Remove the filter basket (Align flat areas on filter basket and canister).

Remove the filter by pulling up and out, clean filter with a garden hose.

Hold filter vertically.

Spray the filter cartridges with a pressure nozzle, starting from the top and spraying down each pleat.

Turn filter cartridge over and repeat step.

Allow the filter cartridge to dry completely before replacing into the spa. It is recommended to have a spare filter on hand to use in your spa while thoroughly drying the filter.

Reinstall the filter cartridge in reverse order of removal.

Deep clean filter cartridge(s) every 2 to 3 months by soaking the filter overnight in a filter solution. Use only an approved filter-cleaning chemical. It is recommended to have a spare filter on hand to use in your spa while soaking and drying the other filter.

TAKING CARE OF YOUR SPA COVER

Proper spa cover care is important. Twice each month clean and condition your spa cover. It is important to use a high-quality, UV blocking conditioner approved by your Dealer or West Coast Spas.

Clean and condition your cover using the following steps:

Remove cover from the spa and lay on a flat surface.

Rinse the cover with lots of water from a hose or bucket.

Using a soft-bristle brush, scrub the cover clean with a mild solution of dishwashing liquid (1 teaspoon of dishwashing liquid to 2 gallons of water). Clean both sides.

Caution: DO NOT let the soap solution dry on the spa cover before it can be rinsed. Be sure to rinse thoroughly.

Apply a high-quality, UV blocking conditioner to the top and sides of the cover.

Let dry completely.

Re-install cover on the spa.

SPA MAINTENANCE

Open the cover on a regular basis to allow accumulated chemical vapors to dissipate.

Twice a year, turn the cover upside down on the spa for a period of 3 to 4 hours to allow the water inside the cover to evaporate so the cover does not become water logged.

Proper spa water chemistry is an important factor in extending the performance life of your spa cover! To help protect your spa from the chemicals in the water we recommend using a floating blanket to insulate the water and protect the cover.

DRAINING YOUR SPA

Your spa should be drained every 4 to 6 months and refilled with fresh water. The following is the recommended method for draining your spa.

Turn off power at the breaker.

Remove filter(s).

Locate a black drain bib on the side of the spa. Follow instructions below to open and drain the spa.

Step 1: Pull drain bib out approximately 2" and remove cap. Install Garden hose and place the other end of the garden hose in a convenient place away from the spa for draining.

Step 2: To begin draining, push the drain bib in halfway. Water should start pouring out of the hose. If water is only trickling, then the bib is not open yet so repeat step until it opens.

Step 3: Let spa drain completely, remove garden hose, put cap back on and push all the way in.

WINTERIZING YOUR SPA

In many areas of the country the temperature drops below 32°F. We recommend that you always have your spa full of water and running at normal spa temperatures (80°F to 100°F). This will help reduce the risk of freezing in your spa and your spa's equipment.

WARNING: If you find the need to drain your spa, please be aware of the potential of freezing in your spas equipment and plumbing. Even if the directions below are followed perfectly, there is no guarantee that your spa will not suffer freeze damage and void warranty coverage.

Cold Climate Draining

Remove filter(s).

Drain your spa completely.

Remove drain plugs from the front of pump(s).

Disconnect the unions from both sides of the pump.

Use a wet/dry vacuum to blow any remaining water out of the jets and plumbing lines.

Use a soft towel to remove any remaining water in the spa, filter canister, and equipment area.

Cover your spa with a good spa cover and all-weather tarp, to ensure rain or snow can not enter the spa.

SPA MAINTENANCE

GENERAL CHEMICAL MAINTENANCE INFORMATION Introduction

To start off this guide, as the manufacturer of spa and hot tubs and a member of the pool and spa industry, we would like to make a statement: "Maintaining proper spa water chemistry is probably the single most important area in the world of spas and hot tubs." Proper maintenance of water chemistry will lead to longer lasting spa, equipment parts, cover, and a more enjoyable bathing experience.

There are two main areas of concern with water chemistry. These are water sanitation and water balance. Basically you want to keep the levels of sanitizers (chlorine, bromine) and the levels of pH, water hardness, alkalinity, and total dissolved solids within accepted limits.

NOTE: If you purchased a spa with extra sanitation equipment such as an ozonator or a TSS system please refer to that manual to maintain the water chemistry. Do not use this manual.

Definitions

Here are a few quick definitions so you don't get lost while reading the rest of this guide.

Sanitizers - These are disinfectants. Their mission is to kill microscopic organisms. These should be present in the water at all times. Examples of sanitizers are chlorine, bromine, and ionizers.

Oxidizers - These work with sanitizers to get rid of pollutants in the water such as: skin oils, soap, and shampoo.

pH - Probably the most important item in water chemistry. It has a major impact on your sanitizer's effectiveness and the life of your spa's components.

Alkalinity - Measures the water's ability to neutralize acid. Balanced alkalinity makes pH easier to deal with.

TDS - Total Dissolved Solids. Basically this is a measure of everything dissolved in your spa.

Hardness - Water hardness or calcium hardness. This refers to the concentration of calcium and magnesium in your water.

Water sanitation

Sanitation is the method of killing micro organisms and neutralizing the effects of oils and soaps in your spa's water. Sanitation agents need to be a full-time army. To ensure their full-time service, a residual amount must always be present in your spa. Think of sanitizers as kamikaze killers. As they do their job, they are used up. Most sanitizers are also susceptible to evaporation and sunlight depletion, so constant reinforcement of these is necessary.

There are two types of sanitation agents: sanitizers and oxidizers. Sanitizers kill the organisms, such as bacteria and mold in your water. Oxidizers help to neutralize sweat, body oils, soaps, and shampoo that have been deposited in the water. Sanitizers and oxidizers work together in great harmony. These days, some sanitizers also contain an oxidizer, so you don't usually have to buy two separate sanitizers. However, if you are depending on an ozonator or a silver or copper ionizer for sanitizing, a separate oxidizer will have to be used.

SPA MAINTENANCE

Sanitation agents available today:

Bromine has no odor, comes in tablet form, and is usually dispensed via a floater. This allows it to dissolve slowly at a constant rate. Bromine is very susceptible to sunlight depletion. Also, because it is not a good oxidizer, the water will need to be occasionally shocked with another chemical. (WARNING: Never mix bromine and chlorine under any circumstances. There is a risk of explosion.) Because it can be dispensed through a floater, has little odor, and does not irritate the skin of most people, bromine is a popular sanitizing method.

Ozone is another form of sanitation. Newer spas come equipped with this useful device as standard equipment. Ozone is both a good sanitizer and oxidizer. Unfortunately, since it is a form of oxygen, it does not last very long in a water environment. This means it cannot produce that residual amount of sanitizer required. For this reason, the ozonator must be used in conjunction with a small amount of chlorine or bromine.

Ionizers are another form of sanitation. The most popular form of this is Nature2's silver ion cartridge system. It introduces silver into your water through a circulation process. The ionizers have no oxidizing ability. For this reason, a separate oxidizer must be used in conjunction with this sanitation method. (NOTE: you should never use bromine in conjunction with silver ionizers.)

Chlorine is the old standby in the pool and spa industry. Its ability to kill bacteria and algae is remarkable and it is wonderfully suited for a water environment. It does have some vulnerability though. It has a threshold at which it has used up all of its power. It is extremely vulnerable to evaporation, low pH, and sunlight. Dichloride tablets and sodium dichloride (variations of chlorine) are sold with some "sunscreen" in them. This sunscreen is cyan uric acid. This strengthens the chlorine against the damage that sunlight can cause. Do not use Tri-Chloride tablets.

As the chlorine uses up its killing power (remember they are kamikaze killers), the remnants have a tendency to combine with other contaminants to form chloramines. Bromine also does this to form bromine's. It is actually these chloramines and bromine's that cause that chlorine-like odor in your spa and irritation in your eyes and skin. In the later section entitled Shocking, TDS, & Hardness, we'll discuss the practice of shocking. This will neutralize the chloramines and bromines in the spa's water.

Water balance

Keeping the water sanitized is one thing. Balancing your water's chemistry is another. Spa water that is too acidic or too basic (alkaline) can cause damage to the spa's cover, surfaces, jets, and equipment, as well as cause murky water and bathing discomfort. There are two basic areas in water balance: pH and total alkalinity.

pH is the measure of how acidic or basic (alkaline) your spa's water is. It is extremely important to monitor pH regularly. The ideal pH range for spas and hot tubs is 7.2 to 7.8. A reading above 7.8 means the water is too basic with high pH while a reading below 7.2 means the water is to acidic with a low pH reading. The chemical packages pH UP and pH DOWN are pH movers. The liquid form of each of these is much too powerful to be used in a spa. Use the dry variations of these products.

SPA MAINTENANCE

Here are some common problems associated with the respective pH levels:

High pH (Basic)	**Low pH (Acidic)**
• Poor sanitizer efficiency Cloudy water • Shorter filter runs • Scale formation • Skin and eye irritation	• Poor sanitizer efficiency • Etched or stained acrylic • Corroded metals/equipment • Skin and eye irritation • Destruction of total alkalinity

Total alkalinity is the water's ability to neutralize acid, also known as the water's buffering capacity. When kept in line, this helps keep the pH level in the proper range. Total alkalinity should be between 80 to 120 parts per million (pap).

Here are some common problems that can result from high or low total alkalinity:

High total alkalinity (over 120 ppm)	**Low total alkalinity** (under 80 ppm)
Hard to change pH	Rapid changes in pH or pH bounce
Scale formation	Stained, etched, or dissolved acrylic
Cloudy water	Corroded metals/equipment
Skin and eye irritation	Skin and eye irritation
Poor sanitizer efficiency	

As you can see, pH and total alkalinity are intertwined and should both be managed carefully.

Shocking, TDS, & Hardness

Shocking with variations of non-chlorine shock will bum out the chloramines and bromamines in the water that may have formed. Also known as super-chlorinating, this practice will fight water problems like cloudy water, skin and eye irritation, and foul odors. These symptoms are usually a result of the presence of those dreaded chloramines and bromamines. Shocking should be done at least once a week.

TDS, or total dissolved solids, is important for one reason. The higher TDS becomes the less effective your addition of spa chemicals will be. Maximum TDS for a spa is around 1200 ppm. Telltale signs of high TDS are salty-tasting or tinted water. TDS can render your test reading inaccurate. If you think that your TDS may be too high, contact a professional spa service technician to have it tested.

Calcium hardness is a concentration of calcium and magnesium in your spa water. The accepted level of hardness is 200-400 ppm. If your water is too soft, the water will slowly dissolve the plaster and metal in your spa's equipment. If the water is too hard, the water will be cloudy and scales will form on the walls of the tub and in your jets wearing them out quicker.

SPA MAINTENANCE

Water testing

Sanitizer tests come in two variations: DPD and OTO. They basically do the same thing with one notable exception; DPD measures the distinction between the free available chlorine (with killing ability left) and the total chlorine. Ideal range for chlorine sanitizer is 1.5 to 3.0 ppm. Bromine results need to be multiplied by 2.25. This test should be done three to four times per week if you use your spa regularly or once a week if you don't. Remember with sanitizer the key is to maintain a residual to keep watch around the clock.

pH is tested with the phenol-red test. Follow the directions on the test kit or test strips for use. The ideal range of pH is 7.2 to 7.8. Test pH with same frequency as sanitizer tests.

Alkalinity tests should be conducted once a week or as needed. It should also be done before a pH test or pH adjustment. The test is a titration test with two reagents. Follow the directions on your specific alkalinity test.

Calcium hardness tests should be performed when the spa is filled or once every three months. There are various hardness tests available. As with the alkalinity tests, follow the test's specific instructions.

Here are some tips for water testing:

Test-kit reagents can deteriorate over time and will eventually give you false results. Always check the expiration dates and follow the manufacturer's instructions for usage and storage.

It's very important to clean your test kit after each use. Any residual chemicals can hamper your efforts at finding and maintaining the right water balance.

Only test spa water that has been circulating for a while and always get your sample from at least 12 inches below the surface. Also, make sure the spa temperature is between 60 and 80 degrees Fahrenheit.

Read results immediately using a brightly lighted background, preferably white.

Do not use your fingers in place of a test vial cap because the oils from your skin can skew the results.

Always record your results. A running history will keep you informed and give you vital information if you start having trouble with your spa water.

Sample Routine

Filling your spa:

Fill to the center of the skimmer

Add a pH balancing agent to prevent drifting of pH levels

Add about 16 oz. of a demineralizing (Metal Guard) agent per 500 gallons of water

Do a calcium hardness test and a TDS test

Do the regular interval tests: Alkalinity, pH, Sanitizer

Add the appropriate amount of sanitizer according to your sanitizer's directions (3.0-5.0 ppm)

SPA MAINTENANCE

Three times per week:

Do regular interval tests: Alkalinity, pH, Sanitizer

Adjust pH and alkalinity with pH moving products and adjust sanitizer levels as appropriate

Twice per week:

Add a clarifying agent (chlorine and bromine users) or a scum fighter (ozonators) Once a week:

Add a scum fighter (chlorine and bromine users)

Shock your tub with non-chlorine shock

As needed:

Surface cleaner (only when spa is not filled)

Sanitizer

Demineralizing agent (Metal Guard)

Defoaming agent (Foam Away)

Aroma agents (Scentsations)

Algae fighters (Algae Aggressor)

The best additions to this guide are individual sets of instructions that accompanied your spa & chemicals.

Proper water chemistry will lead to a longer spa and cover life.

IMPORTANT NOTICE: Before the use of any chemicals, we recommend all spa users consult with their physician for possible allergic reactions to the corresponding chemicals.

TROUBLESHOOTING GUIDE

The spa equipment package will normally function for long periods of time without interruption caused by a malfunction. Occasionally however, incidents occur which may cause stoppage of the system or certain functions. The following information is presented to simplify checking and solving certain operating problems that may occur. If a problem cannot be resolved using the following suggestions, contact your spa dealer or West Coast Spas.

GENERAL PROBLEMS:	USUAL CAUSE:	POSSIBLE SOLUTION:
♦ Nothing Functions	♦ Main Power panel circuit breakers tripped or in off position. ♦ Sub-panel circuit breaker tripped or is in off position. ♦ Sub-panel fuse blown. ♦ GFCI installed on equipment pack has tripped. ♦ Power cord (110v only) no connected to outlet. ♦ 30 amp main fuse inside equipment pack blown.	♦ Reset circuit breaker or turn it on. ♦ Reset circuit breaker or turn it on. ♦ Replace fuse. ♦ Push GFCI reset button in. ♦ Connect power cord to outlet. ♦ Replace fuse.
♦ Spa Not Heating	♦ Dirty filter. ♦ Thermostat set lower than water temperature. ♦ GFCI installed on equipment pack tripped.	♦ Clean or replace filter cartridge(s). ♦ Set thermostat to desired water temperature. ♦ Push GFCI rest button in.
♦ Pump is Noisy	♦ Low water level. ♦ Intake/return slide valve closed. ♦ Clogged or blocked suction inlet(s). ♦ Damaged or worn motor. ♦ Debris inside of pump.	♦ Add water to normal water level. ♦ Open both valves. ♦ Clean suction inlet(s) ♦ Notify dealer. ♦ Notify dealer.

TROUBLESHOOTING GUIDE

GENERAL PROBLEMS:	USUAL CAUSE:	POSSIBLE SOLUTION:
♦ Pump Doesn't Work	♦ Main panel circuit breaker tripped or is in off position. ♦ Sub-panel circuit breaker tripped or is in off position. ♦ Sub-panel fuse blown. ♦ GFCI installed on equipment pack tripped. ♦ Power cord (110v only) not connected to outlet. ♦ 30 amp main fuse inside equipment pack blown. ♦ Pump motor overload protection engaged. ♦ Pump not plugged into side of equipment pack.	♦ Reset circuit breaker or turn it on. ♦ Reset circuit breaker or turn it on. ♦ Replace fuse. ♦ Push GFCI reset button in. ♦ Connect power cord to outlet. ♦ Replace fuse. ♦ Let cool for a couple of hours and try again. Contact dealer if problem persists. ♦ Plug pump receptacle into equipment pack.
♦ Light Will Not Operate	♦ A. Bulb burned out.	♦ A. Replace bulb.
♦ Ozonator (optional) Not Operating	♦ Ozonator not plugged into side of equipment pack. ♦ Ozone chip may be burned out.	♦ Plug ozonator into side of equipment pack. ♦ Replace Ozone chip.
♦ No Water Flow	♦ Air lock in water line. ♦ Pump not operating.	♦ Open drain valve and bleed out any captive air. ♦ See Above for Pump Doesn't Work.
♦ Lower Water Flow From Jets	♦ Dirty Filter. ♦ Clogged or blocked suction inlet(s). ♦ Slide valves closed. ♦ Jet face(s) partially closed. ♦ No air to jets. ♦ Pump running at sub-normal speed. ♦ Worn or damaged pump seal.	♦ Clean or replace filter cartridge(s). ♦ Clean suction inlet(s). ♦ Open gate valves. ♦ Open jet face(s). ♦ Open air dials. ♦ Check voltage coming into spa. If correct, notify dealer. ♦ Notify dealer.

TROUBLESHOOTING GUIDE

GENERAL PROBLEMS:	USUAL CAUSE:	POSSIBLE SOLUTION:
♦ Water Not Clean	A. Dirty filter.	A. Clean or replace filter cartridge(s).
	B. Clogged or blocked suction inlet(s).	Clean suction inlet(s).
	Poor water chemistry.	C. See General Chemical
		Maintenance Information on page 7.
	D. Insufficient filtering time.	D. Run filtration mode longer.
	E. Improper maintenance.	E. See General Chemical
		Maintenance Information on page 7.
	F. High content of solids in	F. Use clarifier or drain and refill
	water.	spa.

E-SERIES & DX-SERIES — LIMITED WARRANTY

5 YEAR-SPA SHELL WARRANTY: West Coast Spas warranties the spa shell structure against the loss of water through the fiberglass laminate of the shell, also the interior acrylic spa surface against blistering, cracking, peeling, discoloring, or delaminating for a period of **5 years** from the original date of purchase. Improper support of the bottom will void your surface warranty.

3 YEAR-PLUMBING WARRANTY: West Coast Spas warranties the plumbing of the spa from loss of water due to defects in materials for a period of **3** years on parts from the original date of manufacture. This warranty specifically covers leaks from the wall fittings, jet fittings, internal plumbing, internal glue joints, drains, hoses, and all bonded parts.

2 YEAR-COMPONENT WARRANTY: West Coast Spas warranties the electrical components such as pumps, control systems, and heaters against defects in materials or workmanship for a period of **2** years on parts and labor from the original date of purchase. Pump seals and bearings are specifically excluded from this warranty. Some parts, most of which can be changed without the use of tools, such as filter cartridges, filter lid, spa pillow , jet inserts, and cover locks, are not included in this warranty, but are warranted to be free from defects in materials and workmanship at the time of delivery. Spa covers and other spa accessories are specifically excluded from this warranty, although they may be covered by other warranties. Please check with your West coast Spa dealer for details.

1 YEAR-LED LIGHTS/AUDIO: West Coast Spas warrants the LED light assemblies, which consist of all lights within the spa, including the underwater lighting, to be free from defects in materials and workmanship for 1 year. Stereo components warranted through original manufacture.

90 DAY-SPA CABINET: West Coast Spas warranties the spa cabinet to be free from defects in materials and workmanship for a period of **90 days** from the initial date of delivery. Weathering, fading,, cracking, and warping of the wood is not considered to be a defect in material or workmanship. Surface stains are specifically excluded from this warranty.

1 YEAR-SALT SYSTEM: West Coast Spas warranties the SALT SYSTEM against defects in materials or workmanship for a period of **1** year on parts and labor from the original date of purchase.

1 YEAR– UV and OZONE: West Coast Spas warranties the UV & OZONE against defects in materials or workmanship for a period of **1** year on parts and labor from the original date of purchase.

EXTENT OF WARRANTY: This Limited Warranty is only valid on portable models delivered in the continental United States, Alaska, Hawaii and Canada and extends through the selling dealer to the original purchaser at the original site of installation. This warranty begins on your delivery date of the spa, and in no event later than one year from the date of purchase. This warranty terminates upon any transfer of ownership, or if the spa is relocated to another location. A warranty card on file is required for all warranty services and parts. This Limited Warranty applies only to spas in single family residential installations and becomes void if the spa is placed in commercial applications. All surface warranties are void on blemished shells. Spa is purchased “as is”.

WARRANTY PERFORMANCE: In the event of a malfunction or defect covered under the terms of this Limited Warranty, notify your dealer or West Coast Spas immediately. Use all reasonable means to protect the spa from further damage. A service representative will repair the spa subject to the terms and conditions contained in this Limited Warranty. There will be no charge for parts on a covered item. However, the authorized service agent may charge you a reasonable travel or mileage charge per service call. If West Coast Spas determines that repair of a covered item is not feasible, West Coast Spas reserves the right to replace the defective merchandise with merchandise equal in value to the original purchase price. In the event of any warranty replacement, all removal, replacement, installation and shipping costs of the spa and/or parts are the responsibility of the spa owner. In the event the consumer is unable to obtain satisfactory customer service from the authorized selling dealer, written notification must be given to the West Coast Spas Customer Service department within 10 days of the reported failure.

WARRANTY EXCLUSIONS & LIMITATIONS: This Limited Warranty is void if the spa has been subjected to negligence, alteration, misuse, abuse, repairs by non West Coast Spas authorized representatives, incorrect electrical installation, alteration without West Coast Spas prior written consent, damage due to normal wear and tear, acts of God (including but not limited to acts of nature and surrounding environments) and any other cases beyond the control of West Coast Spas. Damage caused by operation of the spa at water temperatures outside the range of 32° F and 110° F, damage caused by dirty, clogged, or calcified filter cartridges, damage to the spa surface, jets, and pillows caused by improper use of chemicals or cleanings agents, allowing undissolved spa sanitizing chemicals to lie on the surface, damage caused by improper pH balance or other improper water chemistry, direct exposure to sunlight, and damage caused by failure to provide level and sufficient support for the spa, are considered abuses and will invalidate this Limited Warranty. Surface and Equipment warranties are 2 year full warranty and pro-rated 50% the 3rd year and reduced annually for the remaining years.

DISCLAIMERS: This Limited Warranty provided herein is made with the express understanding that the spa is not an essential device or medical device as defined under State and Federal law. The spa owner is required to provide adequate access to the spa for any repair or inspection. West Coast Spas shall not be liable for loss of use of the spa or other incidental or consequential costs, expenses or damages, which may include but are not limited to water damage, the removal of a permanent deck or other custom fixtures, or the necessity for crane removal. Under no circumstances shall West Coast Spas or any of its representatives be held liable for injury to any person or damage to any property, however arising. This Limited Warranty is in lieu of all other warranties, expressed or implied, including implied warranties of merchantability and fitness for a particular purpose.

LEGAL REMEDIES: This Limited Warranty gives you specific legal rights and you may have other rights, which may vary from state to state. No agent, dealer, Service Company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever.

WARRANTY LIMITATIONS AND EXCLUSIONS

The Limited Warranty is void if the spa has been subject to negligence, alteration, misuse, abuse, repairs by non- authorized representatives, incorrect electrical installation, acts of God and any other cases beyond the control of Manufacturer. This Limited Warranty applies only to spas normally used for personal, family, or household purposes. The Limited Warranty specifically excludes spas used for commercial purposes.

Warranty Limitations:

- Examples of common acts invalidating this warranty include but are not limited to:
- Use of spa in a non-residential application
- Use of soft water to fill the tub
- Scratches caused by normal use
- Operation of spas water temperature outside of the range of 32°F and 118°F
- Damage caused by incorrect water level (Low, Overflow, etc.)
- Damage caused by extreme weather conditions. (Freeze, Heat, etc.)
- Damage caused by dirt, sand, foreign object, and calcium found in the spa and/or in its components
- Damage caused by clogged filter cartridges
- Damage caused by continued operation of the spa with either known or an unknown problem
- Damaged caused by tri-chlor, acids, chlorine tablets, and any other spa chemicals not authorized by West Coast Spas
- Damage caused by improper water chemistry. (High levels of chlorine, bromine, calcium, pH and other excessive chemical levels)
- Damage caused by leaks not promptly reported
- Damage caused by allowing undissolved spa sanitizing chemicals to lie on the surface of the spa
- Damage caused by direct sun light. Spas should always be covered when not in use
- Damage caused as a result of failure to follow operating instructions as defined in this owner's manual
- Damage caused by incorrect electrical installation, electrical brown outs, voltage spikes, or operation of spa out of voltage range by more than (+) or (-) 10%
- Spas improperly installed in-ground or placed on non-approved surfaces
- Damage caused by failure to provide level and sufficient support for the spa

CUSTOMER SERVICE: If you purchased your spa from a dealer, please contact that dealer. If you purchased your spa directly from West Coast Spas, please contact our Customer Service department at 877-469-3611.

LIMITED WARRANTY REGISTRATION

*Must be completed and returned within 30 days of purchase date.

FOR YOUR RECORDS

Date Warranty Registration

Mailed to West Coast Spas:

_____/_____/_____

PLEASE COMPLETE FORM AT RIGHT

AND MAIL TO:

West Coast Spas
13201 Wilco Highway NE
Woodburn, OR 97071

LIMITED WARRANTY REGISTRATION

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone #: _____

E-Mail: _____

Dealer Name: _____

Dealer Location:

_____

_____

Spa Serial #: _____

Spa Model: _____

Spa Color: _____