

## **MODEL 680SS**

# OPERATING INSTRUCTIONS AND PARTS MANUAL

Read instructions carefully before attempting to assemble, install, operate or service this pressure washer. Failure to comply with instructions could result in personal injury and/or property damage!

### **SPECIFICATIONS**

- Pump Volume At Pump Head: 3.0 GPM/180 GPH
- Pump Pressure At Pump Head: 1000 PSI
- Burner Type: Fuel Oil Fired, 289,900 BTU/Hr.
- Burner Fuel Pressure: 140 PSI
- Machine Voltage: 115VAC/60Hz/1Ph
- Total Machine Amperage: 20 Amps
- Machine Weight: 332 Lbs.
- Shipping Weight: 367 Lbs.
- Exhaust Stack Size: 8"
- Machine Dimensions: Length = 44", Width = 26", Height = 41"



Output specifications are based on engine power curves at 100 meters above sea level and 25° C ambient temperature in accordance with SAE J1349.

SERIAL NUMBER:	
DATE PURCHASED:	
FOR SALES AND SERVICE, PLEASE CONTAC	Т:

## CONTENTS

Important Safety Information	4-5
Component Identification	6
Assembly Instructions	7
Installation Instructions	8
Operation Instructions	9
General Washing Techniques & Storage	
Maintenance	11
Troubleshooting	12-13

Warranty

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Date of Purchase \_\_\_\_\_

The model and serial numbers will be found on a decal attached to the pressure washer. You should record both serial number and date of purchase and keep in a safe place for future reference.

## **IMPORTANT SAFETY INFORMATION**



WARNING: High pressure spray can cause paint chips or other particles to become airborne and fly at high speeds. To avoid personal injury, eye, hand and foot safety devices must be worn.

must be worn when using this equipment.

WARNING: This machine exceeds 85 db appropriate ear protection must be worn.



WARNING: High pressure developed by these machines will cause personal injury or equipment damage. Keep clear of nozzle. Use caution when operating. Do not direct discharge stream at people, or severe injury or death will result.





WARNING: Protect machine from freezing.

15. To keep machine in best operating conditions, it is important you protect machine from freezing. Failure to protect machine from freezing could cause malfunction of the machine and result in death.

serious bodily injury, and/or property damage. Follow storage instructions specified in this manual.

16. Inlet water must be clean fresh water and no hotter then 90°F.



WARNING: Hot discharge fluid. Do not touch or direct discharge stream at persons.

WARNING: This machine produces hot water and must have insulated components attached to protect the operator.



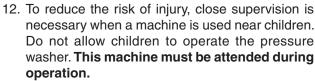
WARNING: Risk of asphyxiation. Use this product only in a well ventilated area.

17. Avoid installing machines in small areas or near exhaust fans. Adequate oxygen is needed for combustion or dangerous carbon monoxide will result.



RISK OF INJURY: HOT SURFACES CAN CAUSE BURNS

WARNING: Risk of injury. Hot surfaces can cause burns. Use only designated gripping areas of spray gun and wand. Do not place hands or feet on non-insulated areas of the pressure washer.





TRIGGER GUN KICKS BACK - HOLD WITH **BOTH HANDS** 

WARNING: Grip cleaning wand securely with both hands before starting. Failure to do this could result in injury from a whipping

- 13. Never make adjustments on machine while in operation.
- 14. Be certain all quick coupler fittings are secured before using pressure washer.

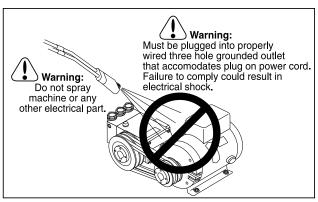
- 18. Manufacturer will not be liable for any changes made to our standard machines or any components not purchased from us.
- 19. The best insurance against an accident is precaution and knowledge of the machine.



WARNING: Be extremely careful when using a ladder, scaffolding or any other relatively unstable location. The cleaning area should have adequate slopes and drainage to reduce the possibility of a fall due to slippery surfaces.

- 20. Do not overreach or stand on unstable support. Keep good footing and balance at all times.
- 21. Do not operate this machine when fatigued or under the influence of alcohol, prescription medications, or drugs.

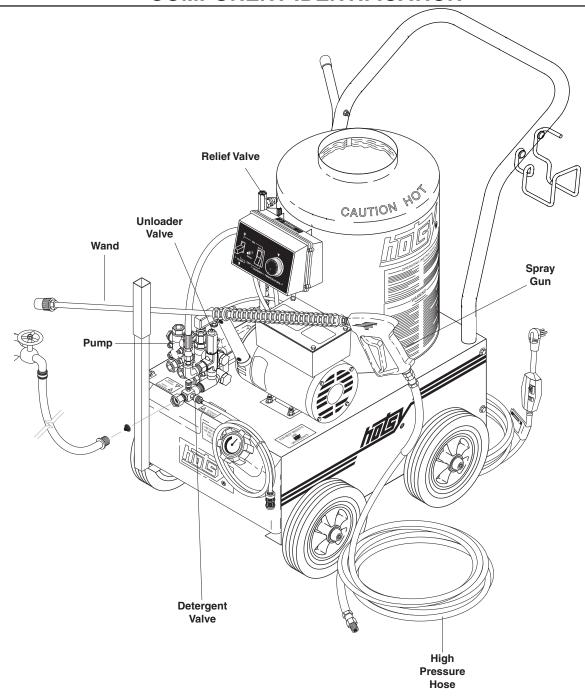
## **IMPORTANT SAFETY INFORMATION**





Follow the maintenance instructions specified in the manual.

## **COMPONENT IDENTIFICATION**



**Pump** — Delivers a specific gpm to the high pressure nozzle which develops pressure.

**Spray Gun** — Controls the application of water and detergent onto cleaning surface with trigger device. Includes safety latch.

**Detergent Valve** — Allows you to siphon and mix detergents.

**Wand** — Must be connected to the spray gun.

**High Pressure Hose** — Connect one end to water pump high pressure discharge nipple and the other end to spray gun.

**Relief valve** — Secondary pressure release in the unlikely event the unloader valve fails.

**Unloader Valve** — Safety device which, when the spray gun closes, prevents over pressurization.

Note: If trigger on spray gun is released for more than 2 minutes, water will leak from the pump protector. Warm water will discharge from pump protector onto floor. This system prevents internal pump damage.

## **ASSEMBLY INSTRUCTIONS**

### Unpacking

Unpack carefully. Wear safety glasses or goggles while unpacking, assembling or operating pressure washer. If there are missing components or hidden damage immediately contact distributor or carrier concerning discrepancies.

- 1. Cut strapping band from pressure washer and pallet.
- 2. Remove pressure washer from pallet.

#### Parts Included

- · Pressure Washer
- Pressure Hose
- Hose Hanger
- Wand
- Wheels (4 Ea.)
- Axles (2 Ea.)
- Handle
- Parts Bag Containing:
  - Bolts 5/16" x 1-1/2" (5 Ea.)
  - Vinvl Cap
  - Nuts 5/16" (5 Ea.)
  - Washers 5/8" (10 Ea.)
  - Pressure Nozzle
  - Hubcaps (4 Ea.)
  - Spring Washers (4 Ea.)
  - Quick Disconnect
  - Quick Disconnect Plug
  - Trigger Gun
  - GFCI Cord Hanger
- Operating Instructions and Parts Manual

#### **Tools Required**

- 10" Adjustable Crescent Wrenches (2 Ea.)
- 11/16" Socket
- Hammer
- 7/16" Open End Wrench
- Teflon Tape

#### Pressure Hose and Wand

- 1. When assembling, use teflon tape on all plumbing connections to prevent leakage.
- 2. Install pressure hose on machine as shown in Figure 2.

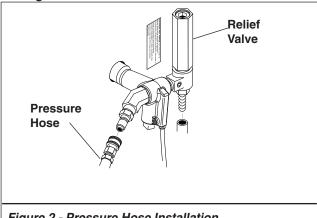


Figure 2 - Pressure Hose Installation

IMPORTANT: Before installing pressure hose onto the trigger gun/wand assembly, turn on the water supply and allow water to run from the end of the hose until clear to prevent the nozzle from clogging.

- Assemble wand components as shown in Figure 3. Connect pressure hose to trigger gun.
- 4. Make sure that all plumbing connections are tight.

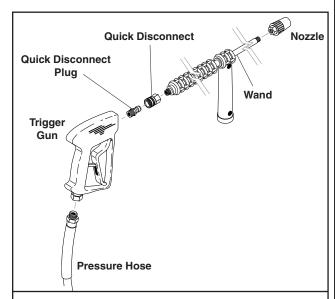


Figure 3 - Wand Components

## **INSTALLATION INSTRUCTIONS**

## **Getting Started**

IMPORTANT: Proper initial installation of equipment will assure more satisfactory performance, longer service life, and lower maintenance cost.

IMPORTANT: The use of a backflow preventer on the water supply hose is recommended and may be required by local code.

The pressure washer should be run on a level surface and in a protected area where it is not readily influenced by outside forces such as strong winds, freezing temperatures, rain, etc. The pressure washer should be located to assure easy access for filling of fluids, adjustments and maintenance. Normal precautions should be taken by the operator to prevent moisture from reaching the pressure washer. It is recommended that a partition be made between the wash area and the pressure washer to prevent direct spray from the wand from coming in contact with the pressure washer. Moisture reaching the equipment will reduce the pressure washer's service life. All installations must comply with the local codes covering such installations.

#### Venting

CAUTION: All venting must be in accordance with applicable federal and state laws, and local ordinances. Consult local heating contractors.

If the pressure washer is to be used in an enclosed area, a flue must be installed to vent burner exhaust to the outside atmosphere. Be sure the flue is the same size as the burner exhaust vent on the pressure washer lid. Poor draft will cause the pressure washer to soot and not operate properly. When selecting the location for installation, beware of poorly ventilated locations or areas where exhaust fans may cause an insufficient supply of oxygen. Proper combustion can only be obtained when there is a sufficient supply of oxygen available for the amount of fuel being burned. If it is necessary to install the machine in a poorly ventilated area, outside fresh air may have to be piped to the burner and a fan installed to bring sufficient air into the machine. Locate the pressure washer so that the flue will be as straight as possible and protrude through the roof at a proper height and location to provide adequate draft. This oil fired pressure washer must have a draft regulator installed in the flue (available from most heating contractors). A draft regulator will permit proper upward flow of exhaust flue gases.

#### Oil Burner

**Burner Air Adjustment:** The oil burner is preset for operation at altitudes below 1000 feet. If operated at higher altitudes, it may be necessary to adjust the air band setting. Adjust the air band for a #1 or #2 smoke spot on the Bacharach scale.

To adjust, start machine and turn burner ON (refer to **Operation** for details). Loosen two locking screws found in the air shutter openings (refer to **Figure 4**) and close air shutter until black smoke appears from burner exhaust vent. Note air band position. Next, slowly open the air shutter until white smoke just starts to appear. Turn air shutter halfway back to the black smoke position previously noted. Tighten locking screws.

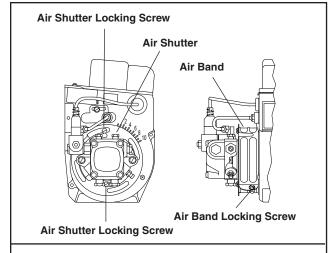


Figure 4 - Burner Air Band Adjustment

If the desired position cannot be obtained using only the air shutter, lock the air shutter in as close a position as can be obtained, then repeat the above procedure on the air band setting.

CAUTION: If white smoke appears from burner exhaust vent during start-up or operation, discontinue use and readjust air bands.

NOTE: If a flue is installed, have a professional serviceman adjust your burner for a #1 or #2 smoke spot on the Bacharach scale.

For additional burner component information, see **Burner Assembly**. It is recommended that the oil burner be serviced yearly or as needed. Contact your local service center.

## **OPERATION INSTRUCTIONS**

#### **Before Starting**

WARNING: Check hoses, trigger guns, fittings, and fuel connections daily for signs of wear, cracks and looseness, and replace as required.

- Connect water supply hose to the standard garden hose connector. The water faucet and supply hose must be capable of providing 3.0 GPM at 20 to 80 PSI
- 2. Fill fuel tank. Use kerosene, #1 grade home heating oil, #1 or #2 diesel fuel. **DO NOT USE GASOLINE**.
- 3. Check pump oil level.
- 4. If detergents are to be used, only use detergents intended for pressure washers. Follow instructions on the detergent container.

#### **Electrical Connections**

WARNING: Make sure all switches and controls are in the OFF position prior to plugging in.

CAUTION: This cleaner is equipped with a UL approved ground fault circuit interrupter (GFCI) power cord. Use UL grounded type receptacles of proper voltage and amperage ratings. Where a properly grounded receptacle is not available, it is the personal responsibility of the owner to have one installed. Always disconnect power before servicing your cleaner.

Connect electrical cord and test the GFCI using the reset and test procedures conveniently located on the GFCI device. The GFCI must be reset and tested with every use. Do not use machine if the GFCI device fails test.

#### To Start

IMPORTANT: The water must be turned on before starting. Running the pump dry will cause damage and void warranty.

IMPORTANT: Do not allow the machine to run in bypass for more than 10 minutes at any one time or damage to pump may occur.

- 1. Turn water on.
- 2. Hold trigger gun firmly, squeeze trigger and turn pump switch ON. Allow air to purge from system.
- 3. If HOT water is desired, turn burner switch ON. Adjust thermostat to desired temperature. The burner will fire immediately with a small puff of smoke. If smoke continues refer to the **Troubleshooting Guide** in this manual. When the trigger gun is closed or temperature setting is reached, the burner will automatically turn off.

#### To Stop

- If detergents were used, draw clear water through the detergent line to purge detergent.
- 2. If burner was used, turn off burner switch and allow pump to run cold water through coil.
- 3. Turn OFF pump switch.
- 4. Turn OFF water supply.
- Squeeze trigger gun open to relieve system pressure.

NOTE: If the machine is unplugged from receptacle, you must reset the GFCI power cord when machine is plugged in. Always test GFCI before each use. See instructions in the Electrical Connections section of this manual.

## **GENERAL CLEANING TECHNIQUES & STORAGE**

Pre-rinse cleaning surface with fresh water. Place detergent suction tube directly into cleaning solution and apply to surface at low pressure (for best results, limit your work area to sections approximately 6 feet square and always apply detergent from bottom to top). Allow detergent to remain on surface 1-3 minutes. Do not allow detergent to dry on surface. If surface appears to be drying, simply wet down surface with fresh water. If needed, use brush to remove stubborn dirt. Rinse at high pressure from top to bottom in an even sweeping motion keeping the spray nozzle approximately 1 foot from cleaning surface. Use overlapping strokes as you clean and rinse any surface. For best surface cleaning action spray at a slight angle.

#### Recommendations:

- Before cleaning any surface, an inconspicuous area should be cleaned to test spray pattern and distance for maximum cleaning results.
- If painted surfaces are peeling or chipping, use extreme caution as pressure washer may remove the loose paint from the surface.
- Keep the spray nozzle a safe distance from the surface you plan to clean. High pressure wash a small area, then check the surface for damage. If no damage is found, continue to pressure washing.

#### A CAUTION - Never use:

- Bleach, chlorine products and other corrosive chemicals
- Liquids containing solvents (i.e., paint thinners, gasoline, oils)
- · Tri-sodium phosphate products
- · Ammonia products
- Acid-based products

These chemicals will harm the machine and will damage the surface being cleaned.

### RINSING

It will take a few seconds for the detergent to clear. Apply safety latch to spray gun. Select and install desired high pressure nozzle. **NOTE:** You can also stop detergent from flowing by removing detergent siphon tube from bottle.

#### **STORAGE**

DANGER: DO NOT store flammable liquids (gasoline, diesel fuel, solvents, etc.) near pressure washer, or in non-ventilated areas.

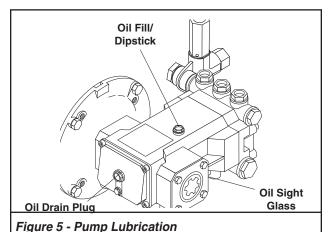
Protect from freezing by storing in a heated area, or by flushing the system with antifreeze (use an automotive engine antifreeze or windshield washer solvent to antifreeze). To flush the system fill the float tank with antifreeze and remove pressure nozzle from wand. Start the machine and allow it to run until antifreeze flows from the end of the wand. Place end of wand into float tank and circulate the antifreeze through system for several minutes. Squeeze and release the trigger of the trigger gun several times to antifreeze the unloader system. Also draw antifreeze through the detergent inlet line to antifreeze the detergent system. For added protection after anti-freezing, disconnect the pressure hose from machine and remove the coil drain plug (refer to Figure 12 Item 15 for location). After coil has drained, replace pressure hose and coil drain plug. If the pressure washer is not to be used for an extended length of time, it is recommended that the system be flushed with antifreeze for rust protection.

### **MAINTENANCE**

WARNING: Unauthorized machine modification or use of non-approved replacement parts may cause personal injury and/or property damage and will void the manufacturer warranty.

#### **Pump**

**Lubrication:** To lubricate pump, use 30W non-detergent oil for pump crankcase. Crankcase must be filled to center of sight glass window found on the rear of the pump, refer to **Figure 5.** During the break-in-period, make sure the oil is changed after the first 25 hours of operation. After that, replace oil every 3 months or 300 hours of operation, whichever comes first.



#### **Proper Pump Care:**

- Do not pump acids.
- Do not allow pump to run dry.
- Winterize if storing in freezing temperatures, refer to **Storage** for details.
- Use a water softener on the water system if known to be high in mineral content.
- Use only high quality detergents and follow mix recommendations.
- Flush the system with clear water immediately after using detergent solutions.
- Clean filter screen on detergent inlet line periodically.
- Flush the pressure washer system with antifreeze if storing for an extended period of time, refer to Storage to details.

#### **Pump Motor**

On a yearly basis, oil pump motor per instructions on motor nameplate.

NOTE: Some motors may be equipped with permanently lubricated bearings and will not require additional lubrication.

#### **Relief Valve**

WARNING: The relief valve on this pressure washer has been factory set and sealed and is a field non-adjustable part. Tampering with the factory setting may cause personal injury and/or property damage, and will void the manufacturer warranty. For replacement parts refer to Coil Outlet Assembly.

If pressure from pump or thermal expansion should exceed safe limits, the relief valve will open, allowing high pressure to be discharged through hose to ground. Caution: Inspect relief valve annually for any obstruction.

#### **Unloader Valve**

WARNING: The unloader valve on this pressure washer has been factory set and sealed and is a field nonadjustable part. Tampering with the factory setting may cause personal injury and/or property damage, and will void the manufacturer warranty. For replacement refer to Pump Assembly, Item 4.

#### **Burner Fuel Filter**

Drain any water which has accumulated in fuel filter and clean or replace filter element as needed. Refer to **Burner Assembly.** 

### **Heating Coil**

**Coil Descaling:** In hard water areas, scale buildup within the heating coil will occur. Scale deposits will decrease the water temperature rise and may eventually clog the heating coil. Contact your local service center when descaling is needed.

**Coil Desooting:** Poor grades of fuel oil or inadequate combustion air will cause heavy soot buildup on the outside surface of the heating coil. These deposits will insulate the coil. This will restrict the air flow through the coil, further aggravating the soot buildup. Contact your local service center when desooting is needed.

## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
PUMP MOTOR WILL NOT RUN	GFCI tripped	Reset and test GFCI with every use. Follow Instructions under <b>Operation</b> .
	No voltage to machine	Test power supply and correct.
	Pump motor reset button (thermal	Push reset button on control box. If
	overload protector) tripped	tripped, check for proper voltage or
		clogged water nozzle.
	Excessive pressure due to clogged water nozzle	Clean water nozzle.
NO WATER SPRAYS FROM WATER	Water nozzle completely clogged	Clean water nozzle.
NOZZLE	Inlet water screen clogged	Check screen and clean if necessary.
	Pump sucking air	Fill the detergent container and check for loose hose clamps or fittings.
LOW PRESSURE FROM WATER	Inlet water screen clogged	Check screen and clean if necessary.
NOZZLE	Water nozzle worn or incorrect size	Replace nozzle with proper size.
	Water supply low	Correct water supply.
	Pump sucking air	Fill the detergent container and check for loose hose clamps or fittings.
POOR OR NO	Low detergent level	Fill the detergent container.
DETERGENT FLOW	Detergent screen clogged	Clean if necessary.
	Detergent valve not opening	Check that handle or knob is not slipping on shaft.
	Water nozzle clogged	Clean water nozzle.
	Excessive inlet pressure (more than 80 PSI)	Install pressure regulator on the inlet line.
BURNER WILL NOT	Defective pressure switch	Replace pressure switch.
IGNITE WHEN	No fuel	Fill fuel tank with proper fuel.
TRIGGER GUN IS OPEN	Fuel valve closed	Check that fuel valve on fuel tank is open.
	Thermostat set too low	Raise thermostat setting.
	Burner motor reset button (thermal	Push reset button on burner motor. If
	overload protector) tripped	tripped, check for proper voltage.
	Clogged fuel filter	Clean fuel filter.
BURNER SMOKES OR HAS	Air intake adjustment needs to be adjusted	Readjust air intake per the oil burner section of this manual.
OBNOXIOUS ODOR	Improper fuel	Use proper fuel.

## **TROUBLESHOOTING**

## **IMPORTANT**

If the pressure washer demonstrates other symptoms or the corrective actions listed do not correct the problem, contact the local authorized Hotsy Service Center. The Hotsy Service Center can be identified by visiting **www.hotsy.com**.

When ordering from your dealer, please provide the following:
Model Number: 680SS
Machine Serial Number:
Component Part Number:
Description:



# HOTSY LIMITED NEW PRODUCT WARRANTY PRESSURE WASHERS

#### WHAT THIS WARRANTY COVERS

All Hotsy pressure washers are warranted by Hotsy to the original purchaser to be free from defects in materials and work-manship under normal use, for the periods specified below. This Limited Warranty is subject to the exclusions shown below, is calculated from the date of the original purchase, and applies to the original components only. Any parts replaced under this warranty will assume the remainder of the part's warranty period.

#### SEVEN YEAR PARTS AND ONE YEAR LABOR WARRANTY:

Components manufactured by Hotsy, such as frames, handles, top and bottom wraps, float tanks, fuel tanks, belt guards, and internal components on the oil-end of HOTSY manufactured pumps. General, AR, Liberty, Comet and swash and wobble plate pumps have a one year warranty. Heating coils have a five year warranty from date of original machine purchase.

#### ONE YEAR PARTS AND ONE YEAR LABOR WARRANTY:

All other components, excluding normal wear items as described below, will be warranted for one year on parts and labor. Parts and labor warranty on these parts will be for one year regardless of the duration of the original component manufacturer's part warranty.

#### WARRANTY PROVIDED BY OTHER MANUFACTURERS:

Motors, generators, and engines, which are warranted by their respective manufacturers, are serviced through these manufacturers' local authorized service centers. Hotsy is not authorized and has no responsibility to provide warranty service for such components.

#### WHAT THIS WARRANTY DOES NOT COVER

This warranty does not cover the following items:

- Normal wear items, such as nozzles, spray guns, discharge hoses, wands, quick couplers, seals, filters, gaskets, O-rings, packings, pistons, pump valve assemblies, strainers, belts, brushes, relief valves, fuses, pump protectors.
- 2. Damage or malfunctions resulting from accidents, abuse, modifications, alterations, incorrect installation, improper servicing, failure to follow manufacturer's maintenance instructions, or use of the equipment beyond its stated usage specifications as contained in the operator's manual.
- 3. Damage due to freezing, chemical deterioration, scale build up, rust, corrosion, or thermal expansion.
- 4. Damage to components from fluctuations in electrical or water supply.
- 5. Normal maintenance service, including adjustments, fuel system cleaning, and clearing of obstructions.
- 6. Transportation to service center, field labor charges, or freight damage.

#### WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

In order to obtain warranty service on items warranted by Hotsy, you must return the product to your Authorized Hotsy Distributor, freight prepaid, with proof of purchase, within the applicable warranty period. If the product is permanently installed, you must notify your Authorized Hotsy Distributor of the defect. Your Authorized Hotsy Distributor will file a claim with Hotsy, who must subsequently verify the defect. In most cases, the part must be returned to Hotsy freight prepaid with the claim. For warranty service on components warranted by other manufacturer's, your Authorized Hotsy Distributor can help you obtain warranty service through these manufacturers' local authorized service centers.

#### LIMITATION OF LIABILITY

Hotsy's liability for special, incidental, or consequential damages is expressly disclaimed. In no event shall Hotsy's liability exceed the purchase price of the product in question. Hotsy makes every effort to ensure that all illustrations and specifications are correct, however, these do not imply a warranty that the product is merchantable or fit for a particular purpose, or that the product will actually conform to the illustrations and specifications. Our obligation under this warranty is expressly limited at our option to the replacement or repair at a service facility or factory designated by us, of such part or parts as inspection shall disclose to have neen defective. THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. Hotsy does not authorize any other party, including authorized Hotsy Distributors, to make any representation or promise on behalf of Hotsy, or to modify the terms, conditions, or limitations in any way. It is the buyer's responsibility to ensure that the installation and use of Hotsy products conforms to local codes. While Hotsy attempts to assure that its products meet national codes, it cannot be responsible for how the customer chooses to use or install the product. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

#### HOTSY

www.hotsy.com

If you are looking for replacement parts for your Hotsy, please contact your local dealer. You can find a dealer by calling Hotsy at 800-525-1976 or by visiting www.hotsy.com.

