

HOT WATER SANITIZING UNDERCOUNTER DISHMACHINE

SERVICE MANUAL

FOR JACKSON MODEL:

MODEL 24B/BF AUTOMATIC DISHWASHER

AFTER SERIAL NO. 21800



January 20, 2004 P/N 7610-100-33-00 (Revision C) www.jacksonmsc.com

MANUFACTURERS WARRANTY ONE YEAR LIMITED PARTS & LABOR WARRANTY

ALL NEW JACKSON DISHWASHERS ARE WARRANTED TO THE ORIGINAL PURCHASER TO BE FREE FROM DEFECTS IN MATERIAL OR WORKMANSHIP, UNDER NORMAL USE AND OPERATION FOR A PERIOD OF (1) ONE YEAR FROM THE DATE OF PURCHASE, BUT IN NO EVENT TO EXCEED (18) EIGHTEEN MONTHS FROM THE DATE OF SHIPMENT FROM THE FACTORY.

Jackson MSC agrees under this warranty to repair or replace, at its discretion, any original part which fails under normal use due to faulty material or workmanship during the warranty period, providing the equipment has been unaltered, and has been properly installed, maintained and operated in accordance with the applicable factory instruction manual furnished with the machine and the failure is reported to the authorized service agency within the warranty period. This includes the use of factory specified genuine replacement parts, purchased directly from a Jackson authorized parts distributor or service agency. Use of generic replacement parts may create a hazard and void warranty certification.

The labor to repair or replace such failed part will be paid by Jackson MSC, within the continental United States, Hawaii and Canada, during the warranty period provided a Jackson MSC authorized service agency, or those having prior authorization from the factory, performs the service. Any repair work by persons other than a Jackson MSC authorized service agency is the sole responsibility of the customer. Labor coverage is limited to regular hourly rates, overtime premiums and emergency service charges will not be paid by Jackson MSC.

Accessory components not installed by the factory carry a (1) one year parts warranty only. Accessory components such as table limit switches, pressure regulators, pre rinse units, etc. that are shipped with the unit and installed at the site are included. Labor to repair or replace these components is not covered by Jackson MSC.

This warranty is void if failure is a direct result from shipping, handling, fire, water, accident, misuse, acts of god, attempted repair by unauthorized persons, improper installation, if serial number has been removed or altered, or if unit is used for purpose other than it was originally intended.

TRAVEL LIMITATIONS

Jackson MSC limits warranty travel time to (2) two hours and mileage to (100) one hundred miles. Jackson MSC will not pay for travel time and mileage that exceeds this, or any fees such as those for air or boat travel without prior authorization.

WARRANTY REGISTRATION CARD

The warranty registration card supplied with the machine must be returned to Jackson MSC within 30 days to validate the warranty.

REPLACEMENT PARTS WARRANTY

Jackson replacement parts are warranted for a period of 90 days from the date of installation or 180 days from the date of shipment from the factory, which ever occurs first.

PRODUCT CHANGES AND UPDATES

Jackson MSC reserves the right to make changes in design and specification of any equipment as engineering or necessity requires.

THIS IS THE ENTIRE AND ONLY WARRANTY OF JACKSON MSC. JACKSON'S LIABILITY ON ANY CLAIM OF ANY KIND, INCLUDING NEGLIGENCE, WITH RESPECT TO THE GOODS OR SERVICES COVERED HEREUNDER, SHALL IN NO CASE EXCEED THE PRICE OF THE GOODS OR SERVICES OR PART THEREOF WHICH GIVES RISE TO THE CLAIM.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING FOR FITNESS OR MERCHANTABILITY, THAT ARE NOT SET FORTH HEREIN, OR THAT EXTEND BEYOND THE DURATION HEREOF. UNDER NO CIRCUMSTANCES WILL JACKSON MSC BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR CONSEQUENTIAL, OR FOR THE DAMAGES IN THE NATURE OF PENALTIES, ARISING OUT OF THE USE OR INABILITY TO USE ANY OF ITS PRODUCTS.

ITEMS NOT COVERED

This warranty does not cover cleaning or deliming of the unit or any component such as, but not limited to, wash arms, rinse arms or strainers at anytime. Nor does it cover adjustments such as, but not limited to timer cams, thermostats or doors, beyond 30 days from the date of installation. In addition, the warranty will only cover the replacement of wear items such as curtains, drain balls, door guides or gaskets during the first 30 days after installation. Also, not covered are conditions caused by the use of incorrect (non-Commercial) grade detergents, incorrect water temperature or pressure, or hard water conditions.

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SPECIFICATIONS JACKSON DISHWASHER MODEL 24 B - BF*

OPERATING CAPACITY 100%	24	24B
Racks per hour	21	21
Dishes per hour	525	525
Glasses per hour	525	525
OPERATING CYCLE	,	
Wash Time — seconds		101
Rinse Time — seconds	121	121
	15	15
Total Cycle — seconds	145	145
WASH TANK CAPACITY (Gallons)	5.65	5.65
RINSE TANK CAPACITY (Gallons)	N/A	3
WASH PUMP CAPACITY (GPM)	60	60
	00	00
WATER REQUIREMENTS 100%		
Inlet Temperature °F	180°	140°
Gallons per hour	52.3	52.3
Flow Pressure, PSI	20	20
Flow, gallons per minute	7.1	7.1
Inlet size – IPS		
Drain size — O.D.	1/2 "	1/2 "
Drain 312e — 0.D.	1 1⁄2 ″	1 1⁄2 ″
WASH PUMP MOTOR (HP)	1/2	1/2
WASH HEATER (kw)	1.0	1.0
RINSE HEATER (kw)	N/A	6.2
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ELECTRICAL REQUIREMENTS (See below for details, under Electrical Rating)

DIMENSIONS

Height, with Top	36"
Height, with no Top	34 1/2 ''
Width	24"
Clearance, Wall to Machine	21/4"
Depth	24''
Maximum Height for Dishes	14"
Rack Size	19 <i>³</i> ⁄4 ''

NOTE VENTED BACK

*ALL 'F' MODELS ARE FREE STANDING (Top and Side Panels)

ELECTRICAL RATING

MODEL	VOLTS	CYCLE	PHASE	TOTAL LOAD AMPS
24B	115/208-230	60	1	38
24	115	60	1	16

Specifications subject to change without notice.

GENERAL INSTRUCTIONS (INSTALLATION)

Note: Read the following instructions carefully, Proper installation of your Jackson Dishwasher will assure proper machine operation.

Uncrating 24:

- 1. Remove straps around carton.
- 2. Open top flaps of dishwasher carton.
- 3. Remove any packing from top and sides of machine that can be done with ease from top.
- 4. Slide carton sleeve upward over top of dishwasher, set to one side.
- 5. Lift dishwasher and wooden base from carton base.
- 6. Move dishwasher to general installation area.
- 7. Remove bolts holding wooden base to machine and screw in adjustable feet supplied.
- 8. Reassemble wash and rinse assemblies in machine using sketch and instructions in this manual.
- 9. Set dishwasher in place, ready for installation.

Note: NSF base cradle installation must be field installed on all AF and BF models. Cradle goes around bottom; secure in place using liquid adhesive.

Installation Instructions:

- 1. The dishwasher can be leveled to the proper height by adjusting the adjustable feet on the four corners. The front of the unit should be $\frac{1}{4}$ " to $\frac{1}{2}$ " higher than the back.
- 2. Refer to the dimensional data sketch for connections.
- 3. The drain from the machine is a GRAVITY DRAIN SYSTEM and should, therefore, have the proper drop from the machine to the kitchen's drain system. The drain connection is located to the left rear of the machine when facing the machine's door. The drain fitting is 1½" OD tube size, 7" from floor.
- 4. IMPORTANT-PLEASE READ-Located on the back upper left corner of this unit is a steam equalizing vent. This vent in no way should be blocked off or prevented from allowing steam to be vented to the outside of the unit or from under the cabinet in which the unit is installed. Never pipe the steam downward toward the floor. (SEE PAGE 4 IF BEING IN-STALLED UNDER A COUNTER.)
- 5. The electrical connections should be made to the terminal board located at the left center front. The terminals are marked L1, and Neutral. Install proper circuit breaker, wire and conduit size to conform with local and/or national codes (standards).



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Installation of Model 24 Top and Table gasket:

These instructions are to be used for applying the adhesive backed sponge rubber strip to the top of the machine prior to setting the table in place.

Included with the Model 24 table is a 6 foot length of $\frac{1}{4}$ " thick x 1" wide sponge rubber adhesive backed stripping.



Instructions for applying gasket:

- 1. Place one end of the stripping along the complete side of the leg support flange and cut it off.
- 2. Repeat the same procedure along the other side.
- 3. Place the remaining piece along the front edge, fit it in between the side pieces and cut it to length.
- 4. Remove the backing and set the strips in place.

Instructions for installation under a porous counter top:

- If possible, a hole should be cut through the counter top directly above the equalizing vent. A piece of 1¼" OD pipe is then inserted through the hole into the vent opening and piped to the outside.
- 2. If cutting a hole in the counter is not possible, then a piece of stainless steel 36" wide by 36" long bend in the middle at 90° should be centered directly over the vent to allow the steam to condensate on it when it comes out of the vent.
- 3. It is very important that this vent be kept open and cool air allowed to circulate around the unit.

Installation of Model 24 Dishwasher Under Dishtable:

- 1. On the end of the table, locate bracket #4 opposite the sink end.
- 2. A square rubber gasket #3 is supplied and should be secured to top frame of dishwasher with caulk or suitable adhesive.
- 3. Place dishtable #2 where it is to be installed and support the machine's end.
- 4. Slide dishwasher #1 underneath dishtable #2 so that the outside of machine is positioned against the guide bracket #4. Make sure dishtable and dishwasher are in desired permanent location.

- 5. Using the two holes in bracket #4 as a guide, drill two holes $%_4$ diameter in the side panel of machine. Note: Drill through first thickness of metal only.
- 6. Using the self-tapping screws supplied, screw them through bracket #4 and into the side panel of machine until screws are tight.



Removal of Pan Strainer for Cleaning: (Wash and rinse head assemblies must be removed prior to removing strainer.)

- 1. Turn heat switch 'off' and drain machine by depressing drain switch for approximately 50 seconds.
- 2. Remove wing nut from rinse feed pipe, remove rinse head assembly by pulling forward.
- 3. Remove wing nut from upper pump housing, wash head may now be lifted out.
- 4. Pan strainer now accessible, lift out and clean thoroughly.
- 5. Clean around pump intake with bristle brush.
- 6. Replace stainer pan.
- 7. Re-install wash and rinse head assemblies.
- 8. Clean strainer pan daily or as needed to insure proper machine operation.

Installation of Wash Head and Rinse Arm Assemblies: (Items disassembled for shipment)



- 1. Line holes up on wash head assembly to match slots in pump housing.
- 2. Insert wash head assembly down into upper pump housing as far as possible.

RINSE ARM ASSEMBLY

3. Insert retaining pin to secure wash head to pump housing.

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- 1. Line up stud to match with slot in nipple.
- 2. Insert rinse arm assembly into female receptical protrudeing through back of machine.
- 3. Insert lanyard pin to secure rinse arm assembly properly.
- 4. Make certain end plugs are secured properly in rinse tubes.

GENERAL INSTRUCTIONS

Note: Read the following instructions carefully. Proper operation of your Jackson Dishwasher will assure clean and sanitized glasses and dishes, at optimum efficiency.

Dish Preparation:

- 1. Scrape dishes thoroughly.
- 2. Pre-wash dishes by soaking or with hose.
- 3. Place dishes and cups in dish rack, cups upside down.
- 4. Place glasses and silverware in combination glass-silverware rack, glasses upside down. Scatter silverware loosely on bottom.
 - Note: Silverware in the upright position washes and rinses better than lying flat. These silverware compartment racks are available through your dealer or Service Agency.

24B/BF Operating Instructions:

- 1. Install pan strainer and the wash and rinse arms. Insert an empty rack, close the door and push till the handle latches.
- 2. Push the on/fill-off/drain switch to the up "on/fill" position. The machine power light will come on and so will the rinse heaters. The machine will begin to fill automatically and stop by itself.
- 3. After the machine has completed filling, open the door and put in a rack of soiled dishes and close the door (the machine door must remain open for a minimum of 5 seconds to allow the timer to reset.)
- 4. After the door has been closed, the cycle light will come on. There will be a 4 second delay before the wash cycle begins.
- 5. The machine will wash for 120 seconds and rinse for 15 seconds. After the cycle has finished, the cycle light will go out.
- 6. Open the door and remove the sanitized dishes. The machine is ready for another cycle.
- 7. To manually wash, push the manual wash switch to the up "on" position. The machine will wash indefinitely. This function can also be used as a delime. To resume normal operation, push the manual wash switch to the down "off" position.
- 8. To drain the machine, close the door and latch. Push the on/fill-off/drain switch to the "off/drain" position. This must done within 4 seconds after closing the door or else the machine will begin another normal cycle.
- 9. After machine has drained, the cycle light will remain on for 1 minute and 30 seconds. This allows the timer to reset for the next meal period.
- 10. Open the door, remove and clean the pan strainer and wash arm.
- 11. Wash heater protection is provided by two means. Primary protection is given by the water level control which senses the water level with a probe. If this should fail due to excessive build up on the probe, the secondary thermal protection will cut out the wash heater before damage occurs.
- 12. When the secondary heater protection has been used, it will be indicated by the illuminated red reset light. The following steps are necessary in this situation:
 - a. Turn off power supply.
 - b. Open the door and remove the wash and rinse arms and the pan strainer.
 - c. Locate the two probes. One is in the wash sump on the left hand side and the other is on the front of the wash tub under the probe cover.
 - d. Using a deliming compound and a brush, clean both probes.
 - e. Reinstall the wash and rinse arms and the pan strainer.
 - f. Push the reset button located above the reset light.
 - g. Push on/fill-off/drain switch to the "on/fill" position. The machine should begin to fill. If it does not and the reset light comes on again, call an authorized service agency.

Detergent Recommendations and Rinse Additives:

We suggest that you contact your local Detergent Specialist for the correct detergent and rinse additives for your area. To help you until one can be reached, we suggest that you use a non-foaming dishwasher detergent, approximately three tablespoons in wash tank when machine is filled and one teaspoon each cycle or load thereafter. This may have to be increased or decreased to obtain satisfactory results.

GENERAL INSTRUCTIONS (PREVENTIVE MAINTENANCE)

(THE FOLLOWING IS TO BE PERFORMED AS NEEDED.)

Note: Read the following instructions carefully. Proper maintenance of your Jackson Dishwasher will ensure optimum service with a minimum of down time.

1. Remove all lime and corrosion deposits.

- a. Fill the machine with wash water as would ordinarily be done for washing.
- b. Open door and place one cup or less of de-liming compound into the water. The compound is available from your detergent supplier.
- c. Turn on the manual wash switch and allow to wash for five minutes.
- d. Open door and examine the interior. All lime should be removed and parts should be shiny. If not, allow to wash for longer period.
- e. After the interior is clean, with door closed, empty the wash water by turning switch to the "off/drain" position. Refill machine and allow to run for two minutes, then again drain the wash reservoir.

2. Clean around overflow strainers and drain hole.

- a. Clean around overflow and strainer pan.
- b. Clean around pump intake (toothbrush makes excellent tool for cleaning).
- 3. Clean Y-strainer on incoming water line. (Water to machine must be turned off for this operation)
 - a. Remove plug and clean strainer.

4. Clean rinse tubes.

- a. Remove rinse assembly by disconnecting rinse feed pipe and removing end plugs on lower rinse.
- b. Clean all rinse tubes and feed pipes with special brush supplied.
- c. If spray holes in the rinse tubes are clogged, they may be cleaned with a pointed object.

5. Clean wash head assembly.

- a. Remove pin holding wash head assembly to pump.
- b. Clean assembly at sink by flushing water through spray jets.
- c. If spray jets are still plugged, use sharp object to dislodge and flush again.
- d. Reinstall wash and rinse assemblies. (See page with instructions.)

6. Clean any deposits which may have built up on exterior moving parts.

- a. Clean around door gasket.
- b. Using a soft bristle brush, clean around switches on exterior of control panel. (Use no water.)
- c. Use soft bristle brush, dip in wash tank water and scrub inside door around gasket and hinges. Use clean cloth or paper towel to wipe off loose residue.

REMOVAL of RINSE and/or WASH HEAD ASSEMBLIES (GENERAL INSTRUCTIONS)

- 1. Drain unit by placing switch in the off/drain position.
- 2. Open the door and allow the unit a few minutes to cool off.
- 3. Remove the pin holding the rinse feed pipe. Pull the feed pipe out of the nipple and lay it to one side.
- 4. Remove wash head assembly by pulling out the holding pin and lifting assembly. Place the wash head on a table for disassembly.
- 5. Locate Allen head set screw in the wash head cap, insert Allen wrench and loosen screw by turning counterclockwise.
- 6. Turn wash head cap counterclockwise until cap is removed and put cap in safe place.
- 7. Remove ¼ " stainless ball bearings carefully and put it in a receptacle in a safe place.
- 8. Lift and remove small manifold with short tubes. Put it in a safe place.
- 9. Remove 1/4 " ball bearing in similar method to step #7.
- 10. Lift and remove large manifold with large length tubes similar to step #8.
- 11. Clean ball bearings by soaking in de-liming solution.
- 12. Ball bearing race ways may be cleaned by either brushing with de-liming solution (toothbrush makes excellent tool) or gently clean by rubbing with fine sandpaper or emery cloth.
- 13. Rinse ball bearings and manifolds thoroughly.
- 14. To reassemble, first fill lower race to capacity with 1/4 " ball bearings, then remove one. This will give proper movement needed during rotation of assembly.
- 15. Replace lower manifold and fill race fully with 1/4 " ball bearings. Repeat, removing one only.
- 16. Replace upper manifolds and repeat necessary parts of step #14.
- 17. Replace wash cap by screwing on center shaft clockwise, finger tight.
- 18. Back off wash cap about 1/4 turn and tighten Allen set screw.
- 19. Rotate manifolds in opposite directions; see if they rotate freely. A rule of thumb is to select the longest tube in the bottom manifold and make sure it moves up and down at least $\frac{1}{2}$ " and no more than $\frac{1}{4}$ ".
- 20. Replace wash head assembly and rinse arm.
- 21. Close the front door and refill dishwasher.
- 22. Run through several cycles and recheck wash arms for easy movement. Adjust if necessary.



ITEM

ITEM P/N

- DESCRIPTION 0186500 WASH HEAD CAP WITH RACE 1.
- 2. 0187000 WASH HEAD CAP SET SCREW
- 3. 0194000 WASH HEAD BEARING 1/4 " S/S
- 4. 0189000 WASH HEAD SMALL MANIFOLD
- w/TUBES 5.
- 0189500 WASH HEAD LARGE MANIFOLD w/TUBES
- P/N DESCRIPTION
- 6. 0187500 WASH HEAD CENTER SHAFT
- 7. 0193601 WASH HEAD FIXED RACE
- 8. 0109600 UPPER PUMP HOUSING 9.
 - 0189805 WASH HEAD ASSEMBLY **RETAINING PIN W/RING**



- 0125500 RINSE HEAD HEX BRUSHING S/S 8.
- - 0137202 RINSE FEED PIPE NIPPLE

TIMER for MODEL 24 DISHWASHERS

General Description:

The timer is a self-contained (frame mounted) timer of the repeating cycle type. It is mounted to the control panel of Jackson Automatic Dishwashing Machines, to control the automatic functions of these machines. It consists of a clock motor which operates on 60 cycle, AC, 110VAC. In addition to the clock motor, the timer also contains a driven cam arrangement which operates six micro switches.

Principle of Operation:

The timer controls various operations of the automatic washers as per wiring diagram for each machine; however, the timing cycle and the micro switches are the same for each model. The time for **One Complete Revolution** of the cam shaft is approximately 150 seconds, allowing one wash and one rinse operation for each complete revolution of the cam shaft.

Service Instructions:

Caution: Always remove the power to the machine before working on the control panel or while servicing the components on the switch panel. All electrical checks should be made by qualified personnel.

Timer operation can be observed after removing the machine's kickplate by loosening the two screws holding it.

If it is determined that the timer is defective, determine which micro switch or if motor is defective. The motor and the micro switches are easily changed.

A frozen contact on a micro switch will be indicated if one function of the timer is being executed all the time or if there is an absence of a click when the switch arm is actuated.

To Replace Micro Switch:

- 1. Push upward on micro switch terminals (away from cams) until actuator button shows.
- 2. Pull micro switch straight out.
- 3. Replace, wire for wire, with new micro switch.
- 4. Replacing micro switch into timer is simply a reverse of steps 1 and 2.

The timer's cam drive system is equipped with a clutch to enable one to view the operations of the cams and micro switches. Remove power to machine **before** touching timer. Rotate cams by turning with fingers; cams will turn in one direction only. Do not force them. As cams actuate switches, listen for the 'click' of the switch or test the switches with an ohmmeter.

DEFECTIVE TIMER MOTOR

A defective motor is indicated by the fact that the cams do not rotate or the machine does not perform the automatic operations, or performs a specific part of the cycle continuously, but works okay on manual. Remember, the timer motor is controlled by the door switch and the hold micro switch; check this complete circuit before changing motor.

To Replace Motor:

- 1. Remove motor leads from shorting bar and neutral.
- 2. Remove the two screws which hold the motor.
- 3. Replace with a new motor.

TYPICAL TIMER SWITCH P/N 0177500



TIMER P/N 0174200 (110V, 60 cycle)

FUNCTION of SWITCHES, CIRCUIT BREAKER and INDICATING LIGHTS

On/FillThis switch serves as the main control for the unit. When pressed into the
'on' position, it activates the heater controls, the automatic fill and readiesOff/Drain'on' position, it activates the heater controls, the automatic fill and readies
the unit for the wash cycle. When turned off, this switch signals the
automatic drain and turns off all power once draining is completed.

Power Light:This light comes on when the unit is turned on and goes off when the unit isP/N 0083518turned off.

Door Switch:Located on top of the unit, behind the latch bracket, this switch serves three
functions. When the door is opened, it will reset the timer to the cycle
starting position. When door is closed, it will start the automatic cycle. If
door should be opened during a cycle, it would act as a safety switch by
turning the unit off.

Cycle Light:This light comes on only when the automatic cycle is in progress and goesP/N 0083501off when the cycle is complete.

Manual Wash
Switch:This switch is used to bypass the timer and operate the wash pump
manually. The wash pump will run as long as this switch is 'on'. Its prime
purpose is to extend the wash period for heavily soiled dishes, but it may be
used for deliming.

Heater ResetThis is the reset button on a thermostatic overload. Its purpose is to provide
a secondary protection for the wash tank heater element. If the heaterP/N 0169601element should come on while the wash tank is empty, this button would
pop out, turning off the element and signaling a problem with the automatic
fill.

Reset Light:This light comes on only when the heater reset trips off. Its purpose is toP/N 0083518signal that there is a problem.

THERMOSTAT ADJUSTMENT

The thermostat can be adjusted by turning screw #1 (see picture) on the thermostat control box cover. (Remember the present setting, in case the problems are elsewhere in the control circuit.) A CW rotation is used to obtain a lower temperature setting and a CCW rotation is used to obtain a higher temperature setting. A $\frac{1}{6}$ turn of screw #1 changes the temperature approximately 15°F. If screw #1 is turned all the way to its stop in either direction, adjust screw #2 as follows.

Note: Do not touch the screw sealed with red paint. When adjusting screw #2, power should be disconnected during adjustment.

Set screw #1 so that it can be turned equal distances in either direction, then:

- if screw #1 stopped while turning in CW direction, turn screw #2 in CW direction, slowly and only ½ of a turn or less per complete cycle of the unit.
- if screw #1 stopped while turning in CCW direction, turn screw #2 in CCW direction, slowly and only ½ of a turn or less per complete cycle of the unit.

Three-fourths of a turn will bring the thermostat to approximately the same setting obtained where screw #1 stopped. Check the present temperature setting before attempting any further adjustments. Use screw #1 for any further adjustments.

Making large moves in adjusting may cause misalignment, thus increasing chances that further adjustment cannot be made and thermostat will have to be replaced.



RINSE TANK HEATER SYSTEM

Function:

The Rinse Tank Heater System is electrically connected in the circuit with the control system functioning on 110/130V and the power system functioning on 208/230V for both systems. The heat circuit is controlled by the 'on/fill' switch (mounted on front panel) and a thermostat (mounted near thermometer) which activates the coil on the heat relay. When higher temperature is required, power is applied to the heaters when the contacts of the heat relay are closed. Should the rinse tank thermometer read either too high or too low, follow checkout below.

Checkout of Heater System for Rinse Tank: (Refer to drawing, Figure #2)

Note: The following checkout should be done by a qualified service person or electrician.

- 1. Turn off power to machine by tripping circuit breaker to 'off' position.
- 2. Remove front kick plate below door.
- 3. Make sure rinse temperature is below 180°.
- 4. Reapply power and observe heat relay (2pole) letter G, figure 2, (next to timer) as 'on/fill' switch is turned on and off several times.
- AA If heat relay contacts do not close, with 'on/fill' switch on:
 - 1. Check power supply at Position 1 on terminal board X. Voltage should be 110VAC.
 - 2. Check Position 3; there should be 'zero' volts there. If not, readjust thermostat per thermostat instructions.
 - 3. If voltage is being applied to Position 1, then the relay should be replaced; coil on relay probably defective.
- BB To determine if elements are working:
 - 1. There's an insulated movable bar on the heat relay across the top of the two contacts. With an insulated probe, depress the bar and observe rinse thermometer; the temperature should rise noticeably in a minute or two. If it moves very slowly, it would indicate that one element is defective. If it moves consistently higher at a good rate, the elements are okay.

Note: A check with an amp probe, if available, can be made.

The element should draw 28 amps. Replace element if found defective.

- CC If the heat relay closes:
 - 1. Check power supply at Position 4 on terminal board X, right hand view. It should be 220V approx. If not, check circuit breaker at customer's panel; replace if defective.
 - 2. Check power at Position 5; voltage should be 220V. If not, check connections and wires for breaks; replace as necessary.
 - 3. With 'on/fill' switch on and relay closed, check power at Position 6; voltage should be 220V. If not, replace heat relay.
 - 4. If No. 3 above checks out okay, check at Position 7; voltage should be 220V. If not, check wiring from heat relay to elements for loose connections or broken wires; repair as necessary.





FIGURE #2 RINSE TANK HEATER SYSTEM

- A ON/FILL SWITCH
- **B WATER LEVEL CONTROL**
- **C** THERMOSTAT
- D (WASH) RING HEATER
- **E** THERMOSTATIC OVERLOAD
- F RESET LIGHT
- G RELAY
- H RINSE HEATER
- X TERMINAL BOARD

WASH TANK HEATER SYSTEM

Function:

The Wash Tank Heater Control system is electrically connected in the circuit to operate on 220V regardless whether system is 60 or 50 cycle. The heat circuit is controlled by a water level control (mounted middle of control panel), thermostat (mounted near thermometers), and thermostatic overload (located beside manual wash switch). When higher temperature is required, power is applied to the heater element through above controls. Should the wash tank thermometer read either too high or too low, follow checkout below.

Checkout of Heater System for Wash Tank: (Refer to drawing, Figure 1.)

Note: The following checkout should be done by qualified service personnel or electrician.

- 1. Ready machine for normal dishwashing operation with wash tank water at proper level.
- 2. Remove front kickplate below door.

Note: Power's still applied to circuit, so be careful.

- 3. Check power to machine at Position 1; terminal board X should read 110V. If not, check customer's circuit breaker. If defective, replace.
- 4. Wash temperature should be 130° or less to proceed.
- 5. Observe water level control, letter 'B' (with front door closed and latched). Turn 'on/fill' switch on and off several times. Relay and contact points (inside clear plastic case on water level control) should move back and forth.
- AA If water level control relay doesn't close, refer to page on Water Level Control's function and checkout.
- BB If water level control relay does close, proceed with 'on/fill' on.
 - 1. Check voltage at Position 1 on terminal board X. Voltage is 110.
 - 2. Check Position 3, Figure 1; there should be no voltage. If there is voltage, then adjust thermostat (refer to page on Thermostat Adjusting).
 - 3. Check reset light. If light is on, push reset button.
 - 4. Check Position 5, Figure 1, voltage should be 220. If not, check Position 8, there should be 220V.
 - 5. Temperature should rise **slowly**, a check with an amp probe would indicate if the element is drawing the correct amperage. Replace element if defective.

WATER LEVEL CONTROL

P/N 0204500 (110V, 60 cycle)

Function:

The water level control device is utilized on this machine to automatically control the filling of the wash tank and the activation of the wash tank heater.

Note: All electrical checks should be made by qualified service personnel.

The control is designed to sense when the proper water level is reached. At this time, the relay in the clear plastic case will activate, opening the auto fill circuit and closing the circuit to the thermostat which completes the wash tank heat circuit as it closes. If one of the following problems exist, this unit should be checked out as shown below.

Symptoms of Level Control Failure:

- 1. Automatic fill will not shut off when water reaches the proper level.
- 2. Machine will not automatically fill when 'on/fill' switch is activated.
- 3. Wash heater reset trips off.

Proceed with Checkouts:

- 1. Remove power source to machine by moving circuit breaker to 'off' position.
- 2. Remove screws holding lower kick plate on front of machine and locate water level control (sketch below).
- 3. Remove, mark and insulate, for easy replacement, wires going to letters C & H.
- 4. Re-apply power, turn on 'on/fill' switch. With an insulated wire, connect jumper wire between terminals C & H (24 volt system).
- 5. If relay operates, the water level control action can be deemed operational; then other causes should be explored.
- 6. If relay doesn't operate, replace control.
- 7. Remove power source once again and replace wires that were removed in step three to original terminals (see trouble shooting section for other possible causes).



SERVICE INSTRUCTIONS (INCOMING WATER SOLENOID VALVE)

SOLENOID VALVE P/N 1421 (110V, used on 60 cycle machine)

To take the valve apart:

Disassembly — These valves may be taken apart by unscrewing the bonnet and the enclosing tube assembly from the valve body assembly. See Fig. 3. After unscrewing, carefully lift off the bonnet and enclosing tube assembly. Don't drop the plunger. The "O" ring seal and diaphragm cartridge can now be lifted out.

Be careful not to damage the machined faces while the valve is apart.

To Reassemble — Place the diaphragm cartridge in the body with the pilot port extention UP. Hold the plunger with the synthetic seat against the pilot port. Make sure the "O" ring is in place, then lower the bonnet and enclosing tube assembly over the plunger. Screw bonnet assembly snugly down on the body assembly.



DIAPHRAGM CARTRIDGE



Possible Problems

Pilot Port extension #1 clogged Hole #2 clogged

Remedy

Pass heated straight pin through hole #2 or clean hole #1

SEAL and CERAMIC for PUMP SYSTEM (GENERAL INFORMATION)

The wash and drain pump are part of the total motor pump system. One seal and ceramic are utilized to prevent the pump from leaking.

Replacement of Seal and/or Ceramic:

- 1. Drain machine either by depressing drain switch or by bailing out.
- 2. Turn incoming power to machine off.
- 3. Open door remove dolly, racks, rinse head assembly and wash head assembly.
- 4. Remove kickplate (located under front door).
- 5. Unplug motor at connector
- 6. Loosen eight screws holding pump in sump tank.
- 7. Disconnect drain hose from motor (must be done from underneath machine).
- 8. Pull motor and pump gently upward and move from side to side as required to remove unit. (Old machine motor removed downward.)
- 9. Set pump and motor on bench and proceed.
- 10. Loosen eight screws holding upper pump housing, and remove housing.
- 11. Remove diffuser plate.
- 12. Loosen impeller screw and remove impeller.
- 13. Remove suction adapter plate.
- 14. Remove drain inlet plate.
- 15. Remove propeller.
- 16. Remove mounting plate from motor (loosen 4 phillips head screws on bottom of plate).
- 17. Knock out old seal carefully and clean hole, re-insert new seal. Note: Be sure not to ruffle edges of seal when inserting. Seal should contact all resting surfaces at one time.
- 18. Ceramic is imbedded in propeller and normally does not wear or need replacement, but check for cracks.
- 19. Re-install motor and pump by reversing above process.



1. MOTOR

2. MOUNTING PLATE

- 3. STATIONARY SEAL
- 4. SHIM WASHERS
- ON MOTOR SHAFT
- 5. CERAMIC
- 6. DRAIN PROPELLER

TROUBLE SHOOTING GUIDE

PROBLEM Water overflow out bottom of front door when wash pump is operating.

Wash motor doesn't operate on manual wash.

CAUSE Machine not level.

Overflow drain clogged.

Water level in machine's wash reservoir too high.

Detergent foaming. Equalizing vent blocked.

Wires broken or loose.

Defective manual wash switch.

Bad bearing, noticeable by noisy bearings or locked drive shaft.

Defective motor starting relay. (Typical - motor hums.)

SOLUTION

Level machine. Slight tilt to rear Remove obstruction, checking inside of machine first.

Solenoid valve not closing at end of fill or rinse cycle causing excessive water problem.

Reduce quantity of detergent.

Allow free steam flow.

Check all wires in the motor and reconnect as necessary.

Replace.

Replace.

Replace.

Note: The motor starting relay is utilized to insert a starting field in the wash pump motor, once the motor has gained speed, the running winding will then take over and the starting winding will be removed when the relay kicks out.

Motor runs on manual wash but doesn't operate on automatic (rinse operates okay on both manual and automatic cycles.)

No water comes through the rinse arms when the 'on/fill' switch is depressed.

Little or no water coming through rinse assemblies.

Defective micro switch on timer.

Defective circuit in manual wash switch.

Hand water valve to machine not turned on.

Defective coil on solenoid valve.

Probes are dirty or coated.

Defective water level control.

Limed up rinse heads or . piping.

Water pressure low.

Replace switch.

Replace switch.

Turn on water valve.

Replace coil.

Clean probes.

Replace.

Begin by cleaning rinse heads using instructions for de-liming. If this isn't satisfactory, then clean the rinse feed pipes.

Increase pipe size to machine.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Tinse doesn't operate on Automatic during timed cycle (but does operate on auto/fill operation).	Micro switch defective.	Replace.
Rinse water runs continuously with circuit breaker controlling machine turned off.	Defective plunger in solenoid valve.	Replace plunger.
	Defective diaphragm in solenoid valve.	Check both holes in diaphragm cartridge to insure that they are open. The one on the outside perimeter should be the size of an ordinary straight pin. If it's not, heat a straight pin and put it through this hole to enlarge. If this fails to correct situation, replace diaphragm.

Note: In disassembling solenoid valve, use instructions shown on separate page.

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Rinse water runs con- inuously with power applied o machine, but when circuit breaker to machine is turned off, water stops.	Defective water level control.	Replace.
	Defective timer that has stopped in a position keeping the rinse on.	Replace timer motor or timer as necessary
	Probes are dirty or coated.	Clean probes.
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Note: Excessive water line pressure can cause water to continually run even though the power to the machine is turned off. Check specifications for required pressure. 1

Wash temperature not at required reading on thermometer.	Defective thermometer.	Using a thermometer (fast reading type that's known to be correct), insert in wash rerservoir and check reading against wash thermometer on machine. If machine thermometer isn't correct within three or four degrees, replace.
	Rinse temperature not at required temperature, causing wash temperature to be lowered during rinse cycle.	Check out rinse heat using heater checkout system page in manual.
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Note: Any switches, water level controls, heater elements, relays or contactor that have to be checked out, can be done using the heater checkout system page.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
	Thermostat defective.	Adjust using instructions on thermostat page and heater system's checkout page. Replace if necessary.
	Water level protection control defective.	Replace. (Auto/fill would run continuously.)
	Heater element defective.	Replace.
	Wires loose or burned off.	Retighten or Replace.
Rinse water not at required emperature range.	Thermometer's defective.	Replace.
	Thermostat defective.	Adjust using instructions on thermostat page and heater system's checkout page. Replace if necessary.
	Defective heater relay on contactor.	If defective, replace. See note on heater system above.
fter filling machine with rater, leakage began at ower front panel without nachine operating or at end f rinse cycle.	Overflow drain clogged.	Clean away obstruction.
lachine doesn't drain when off/drain' switch is depressed.	Drain solenoid clogged.	Remove obstruction.
andram switch is depressed.	Defective switch.	Replace.
	Defective motor or motor start relay.	Replace.
	Defective drain solenoid.	Replace.
	Defective micro switch on timer.	Replace micro switch.
	Defective relay.	Replace.

Note: The drain pump of this machine is part of wash motor, so if wash motor operates properly drain system should work.

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FRONT VIEW

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ITEM	P/N	DESCRIPTION
1.	0052700	DOOR HANDLE ASSEMBLY
2.		SWITCHES
3.		FRONT DOOR
4.		RINSE ASSEMBLY, UPPER
4A.	0125200	RINSE ASSEMBLY, LOWER
5.	0188900	WASH ASSEMBLY
6.	0005700	BOOSTER TANK
7.		HEATER ELEMENTS
8.	0142100	SOLENOID, (110V, used on 60 cycle machines)
9.	0185000	VALVE FOR HEALTH INSPECTOR GAUGE
10.	0153600	"Y" STRAINER
11.		ELECTRIC PANEL
12.		INCOMING WATER CONNECTION
13.	0169100	THERMOMETERS
14.	0170018 or	THERMOSTATS

or 0170023

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BACK VIEW

ITEM	P/N	DESCRIPTION
1.	0184101	VACUUM BREAKER ASSEMBLY
2.	0108100	PUMP & MOTOR ASSSEMBLY, (110V, 60 cycle)
3.		DRAIN - GRAVITY FEED
4.	0005700	BOOSTER TANK
5.		EQUALIZING VENT
6.		INCOMING WATER CONNECTION

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LEFT SIDE VIEW

ITEM	P/N	DESCRIPTION
1.	0184101	VACUUM BREAKER ASSEMBLY
2.	0052700	DOOR HANDLE ASSEMBLY
3.	0052600	FRONT DOOR, OUTER
4.	0054902	KICK PANEL
5.		INCOMING WATER CONNECTION
6.	0083400	ADJUSTING FEET
7.	0108100	PUMP & MOTOR ASSEMBLY, (110V, 60 cycle)
8.		DRAIN — GRAVITY FEED
9.	0142400	DRAIN SOLENOID VALVE, (110V, used on 60 cycle machine)
10.	0004001	SIDE FRAME & BRACE, LEFT HAND



RIGHT SIDE VIEW

ITEM P/	/N
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- DESCRIPTION
- 1. 0184101 VACUUM BREAKER ASSEMBLY
- 2. 0125100 RINSE ASSEMBLY, UPPER
- 2A. 0125200 RINSE ASSEMBLY, LOWER
- 3. 0004000 SIDE FRAME & BRACE, RIGHT HAND
- 4. 0188900 WASH ASSEMBLY
- 5. 0005700 BOOSTER TANK
- 6. 0083400 ADJUSTING FEET
- 7. 0054902 KICK PANEL
- 8. 0052600 FRONT DOOR
- 9. 0052700 DOOR HANDLE ASSEMBLY
- 10. 0054700 OPTIONAL TOP





RINSE TANK

8.

- ITEM P/N DESCRIPTION
 - 1. 0005700 BOOSTER TANK
 - 2. 0060001 BUS BAR
 - 3. 0060000 BOOSTER HEATER ELEMENT
 - 4. THERMOSTAT COUPLING
 - 5. 0060002 HEATER ELEMENT GASKET 6. WATER INLET
 - 6. WATER INLET 7. THERMOMETE
 - THERMOMETER COUPLING
 - WATER OUTLET





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DRAIN VALVE P/N 0142400 (110 V, used on 60 cycle machine)

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PANEL

ITEM

P/N DESCRIPTION 0169100 THERMOMETERS, WASH AND RINSE

1. 0169100 THERMOMETE 2. 0170018 THERMOSTAT

or

0170028

- 3. 0083518 POWER LIGHT
- 4. 0083501 CYCLE LIGHT
- 5. 0159600 SWITCHES
- 6. 0083518 RESET LIGHT
- 7. 0121300 MOTOR RELAY
- 8. 0169601 THERMOSTATIC OVERLOAD
- 9. 0165600 TERMINAL BOARD, INCOMING ELECTRICAL CONNECTION
- 10. 0124600 MOTOR REVERSING RELAY
- 11. 0120701 MOTOR STARTING RELAY
- 12. 0120500 HEATER RELAY
- 13. 0174200 TIMER







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COMPLETE PARTS LIST for MODEL 24

0005700	Booster Tank (stripped)	1
0051700	Door Latch and Switch Bracket	1
0052300	Door Gasket	1
0052400	Door Gasket, Clamp Assembly	1
0052600	Door, Front, Outer only, stripped	
0052700	Door Handle	
0053400	Drain Hose-Pump to Solenoid Valve, short	
0053500	Drain Hose Clamps	
0053600	Drain Hose-Solenoid Valve to Drain, long	
0054400	Door Spring	
0054500	Door Spring Enclosure Panel, righthand side	
0054500	Enclosure Panel, lefthand side	
0054700		
0054700	Enclosure Panel, top	
	Enclosure Panel, Lower Kickplate]
0056900	Heater Element, ring-style, 1000W, 220V	1
0060000	Heater Element, Flange Type, 208/230V, 6200W	1
0060001	Heater Element, Flange Type, Bus Bars	2
0060002	Heater Element, Flange Type, Gasket	1
0083501	Light, Indicator, Amber	1
0083518	Light, Indicator, Red	2
0084300	Probe, Lundy, small	1
0108100	Pump Assembly, complete with motor, 115V, 60 cycle	1
0108400	Pump Gasket	1
0108500	Pump Propeller Mounting Plate and Seal Assembly, kit	1
0108700	Pump Diffuser (only)	1
0109000	Pump Impeller, kit	1
0109500	Pump, Upper Housing, kit	1
0109600	Pump, Upper Housing, (only)	1
0109700	Pump Fill Head Machine Screws, short	4
0109800	Pump Fill Head Machine Screws, long	4
0117500	Rack, square, 193/4 " × 193/4 " (cup, bowl, glass)	1
0117800	Rack, square, 193/4 " × 193/4 " (dish-molded)	2
0120500	Relay, 110V, 2-pole, HW Heat Circuit	1
0120701	Relay, 110V, Motor Starting	
0121300	Relay, Motor	2
0124600	Relay, Motor Reversing	1
0125100	Rinse Head Assembly, upper	
0125200	Rinse Head Assembly, lower	
0125200	Rinse Head End Plug, knurled.	2
0125500	Rinse Head, Hex Bushing	2
0125500	Rinse Head, upper, Dual Systems	2
0125700	Rinse Read, upper, Dual Systems	1 -
	Rinse Head, Nylatron Washer	2
0126500	Rinse Head, Snap Ring, s/s	2
0131000	Rinse Head Brush, Tube Cleaning	
0137301	Rinse Feed Pipe Lanyard Pin	1
0142100	Solenoid Valve 1/2 ", JE, 110V.	1
0142400	Drain Valve, Dole ½ ", 110V, (Valve only)	1
0143600	Solenoid Valve Coil, 110V, JE	1
0145000	Solenoid Valve Diaphragm Cartridge & "O" Ring, JE	1
0147500	Solenoid Valve "O" Ring, JE	1
0148600	Solenoid Valve, Plunger Assembly, JE	1
0149500	Solenoid Valve, Strainer Screen, JE	1
0153100	Strainer, Pan-Type	1
0159600	Switch, On/Fill-Off/Drain	1
0164000	Switch, Door, SPDT	1
0159700	Switch, Manual Wash	1

COMPLETE PARTS LIST for MODEL 24

0165600	Terminal Board, 3-pole	1
0169100	Thermometer 36" Can Rinso	
0169601	Thermometer, 36 " Cap., Rinse	1
0170018	Thermostatic Overload, Heater	1
0170023	Thermostat, Rinse, 180° fixed	1
	Thermostat, Wash, 150°, fixed	1
0174200	limer, 115V W/wires, 6-cam	1
0177500	Timer Micro Switches, Plastic Module-Type	3
0184101	Vacuum Breaker, 1/2 " Conbraco	1
0184200	Vacuum Breaker Repair Kit, ½ " Conbraco	4
0186500	Wash Head Cap w/Race	1
0187000	Wash Head Cap Set Screw	1
0187500	Wash Head Center Shaft	1
0188600	Wash Head Holding Pin	1
0188900	Wash Head Assembly, complete	1
0189000	Small Manifold w/Tubes, Wash Head	4
0189500	Large Manifold w/Tubes, Wash Head	ा च
0193600	Wash Head Fixed Race	2
0194000	Wash Head Rearings 1/ " ele	2
0204500	Wash Head Bearings, 1/4 " s/s	57
0204000	Water Level Control, 110V, Curtis	1

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EMR SERVICE DIVISION

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JACKSON SERVICE COMPANY

3980 BENSTEIN RD. COMMERCE TWSHP, MI 48382 (248) 363-4159 800-332-4053 FAX: (248) 363-5448

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3516 ROGER B. CHAFFE SE GRAND RAPIDS, MI 49548 (616) 241-0200 800-823-4866 FAX: (616) 241-0541 grand_rapids@gcssvc.com

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COMMERCIAL PARTS & SVC. 3717 CHERRY ROAD MEMPHIS, TN 38118 (901) 366-4587 800-262-9155 FAX: (901) 366-4588

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KAMMERLIN PARTS & SVC. 2728 LOCUST STREET ST. LOUIS, MO 63103 (314) 535-2222 FAX: (314) 535-6205

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GCS SERVICE INC. #77 3585 EAST PATRICK LANE SUITE 1000 LAS VEGAS, NV 89102 (702) 450-3495 800-500-9060 FAX: (702) 450-3491 las_vegas@gcssvc.com

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JACKSON FASPRAY SVC. 155 SARGEANT AVE. CLIFTON, NJ 07013 (973) 471-8000 800-356-6740 FAX: (973) 471-1289

GCS SERVICE INC. #2 1 MADISON STREET BUILDING F EAST RUTHERFORD, NJ 07073 (973) 614-0003 800-399-8294 FAX: (973) 614-0230 east_rutherford@gcssvc.com

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FOOD SERVICE EQMT. 2101 PARKWAY SOUTH

BROOMALL, PA 19008 (610) 356-6900 FAX: (610) 356-2038 dancerule@aol.com

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STOVE PARTS SUPPLY CO. 2120 SOLANA STREET FORT WORTH, TX 76117 (817) 831-0381 800-433-1804 FAX: (817) 834-7754 bua@stoveparts.com

NEW YORK

APPLIANCE INSTALLATION

AND SERVICE CORP. 1336 MAIN STREET BUFFALO, NY 14209 (716) 884-7425 800-722-1252 FAX: (716) 884-0410 ais@worldnet.att.net

B.E.S.T. INC.

3003 GENESEE STREET BUFFALO, NY 14225 (716) 893-6464 800-338-5011 FAX: (716) 893-6466 bestserv@aol.com

DUFFY'S EQUIPMENT SVC.

3138 ONEIDA STREET SAUQUOIT, NY 13456 (315) 737-9401 800-443-8339 FAX: (315) 737-7132 duffyequip@aol.com

NORTHERN PARTS & SVC. 21 NORTHERN AVENUE PLATTSBURGH, NY 12903 (518) 563-3200

(313) 363-3200 800-634-5005 FAX: (800) 782-5424 info@northernparts.com

GCS SERVICE INC. #01 932 GRAND STREET BROOKLYN, NY 11211 (718) 486-5220 800-969-4271 FAX: (718) 486-6772 new_york@gcssvc.com

JACKSON FASPRAY SVC.

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CHARLOTTE, NC 28273 (704) 529-6242 FAX: (704) 529-1558 info@whaleyfoodservice.com

WHALEY FOODSERVICE REPAIRS

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WHALEY FOODSERVICE REPAIRS

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KRUEGER INC.

100 NE 24TH STREET OKLAHOMA CITY, OK 73105 (405) 528-8883 800-522-8069 FAX: (405) 528-5405 kruegers@swbell.net

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RON'S SERVICE 16364 SW 72ND AVE PORTLAND, OR 97224 (503) 624-0890 800-851-4118 FAX: (503) 684-6107 Irobinson@ronsservice.com

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AFS-AUTHORIZED FACTORY SVC. INC. 940 FIRST AVE. CORAOPOLIS, PA 15108 (412) 262-2330 800-222-8767

FAX: (412) 262-2245 ELMER SCHULTZ SVC. 540 NORTH 3RD STREET

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1833-41 N CAMERON STREET HARRISBURG, PA 17103 (717) 236-9039 800-932-0503 FAX: (717) 238-4367 kdparts-service@paonline.com

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COMMERCIAL PARTS & SVC.

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ARMSTRONG REPAIR CENTER

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1377 N BRAZOS P.O BOX 831128 SAN ANTONIO, TX 78207 (210) 735-2811 800-292-2120 FAX: (210) 735-7421 brock@commercialkitchen.com

GCS SERVICE INC. #90

10850 SANDEN DRIVE DALLAS, TX 75238-5325 (972) 484-2954 800-442-5026 FAX: (972) 484-2531 dallas@gcssvc.com

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<u>UTAH</u>

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