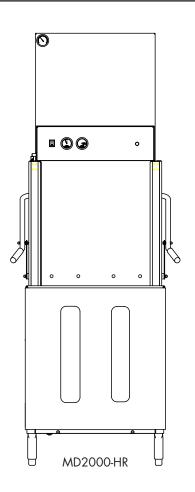


# Installation, Operation, Parts Manual



# Model:

## MD2000-HR

Hot water sanitizing Door-type machine w/fresh water rinse and built-in stainless steel electric booster, Heat Recovery



3765 Champion Boulevard Winston-Salem, NC 27105 (336) 201-5681 Fax: (336) 661-1660 Toll-free: 1 (828) 228-8350 Issue Date: 5.11.20 Manual P/N 115258 rev. C For machines beginning with S/N D190818113 and above



#### NATIONAL SERVICE DEPARTMENT USA Toll-free: 1-800-858-4477

 Tel:
 (336) 661-1556

 Fax:
 (336) 661-1660

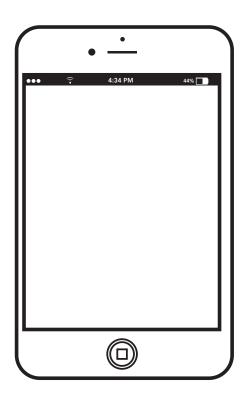
 Email:
 service@moyerdiebel.com

### ATTENTION

<u>The machine data plate</u> <u>is located right front corner</u> <u>of the front panel.</u>



# Two ways to REGISTER YOUR PRODUCT and ACTIVATE YOUR WARRANTY.



- Use your mobile device and connect to the website www.moyerdiebel.com to register your product.
- Complete the fax form on the next page and fax.

# PRODUCT REGISTRATION BY FAX

### COMPLETE THIS FORM AND FAX TO:

### (336) 661-1660 in the USA

### 1-(800) 204-0109 in Canada

Model	Serial #	
Date of Installation:/ /		
Company Name:		
Address: Telephone #: (  ) Contact:	(Street) State/Province Zip/Po	stal Cod
Installation Company:		
Address:		
Telephone #:		
Contact:		
FAILURE TO REGISTER YOUR	R PRODUCT MAY VOID YOUR WARRAM	ITY
IMPORTA	NT IMPORTANT	

# **Revision History**

Specifications are subject to change based on continual product improvement.

Revision Date	Revised Pages	Serial Number Effectivity	Revision Description
9.12.19	All	D190818113	Released first edition
9.16.19	32-33	D190818117	Added Item 6 to bolt
			heat wrap in place.
1.8.20	38-39	D191018379	Changed Item 15 & 16 to
			P/N 332546 and 332547.
5.11.20	27	All	Changed Item 21 to P/N 113604

# Limited Warranty LIMITED WARRANTY

Moyer Diebel (herein referred to as 'The Company'), 3765 Champion Blvd., Winston-Salem, North Carolina 27105, warrants machines, and parts, as set out below.

Warranty of Machines: The Company warrants all new machines of its manufacture bearing the name 'Moyer Diebel\_ and installed within the United States and Canada to be free from defects in material and workmanship for a period of one (1) year after the date of installation or fifteen (15) months after the date of shipment by The Company, whichever occurs first. [See below for special provisions relating to glasswashers.] Warranty registration must be submitted to The Company within ten (10) days after installation either online on the Moyer Diebel website (http://www.moyerdiebel.com or by the fax form provided at the front of this manual. The Company will not assume any responsibility for extra costs for installation in any area where there are jurisdictional problems with local trades or unions.

If a defect in workmanship or material is found to exist within the warranty period, The Company, at its election, will either repair or replace the defective part or accept return of the machine for full credit; provided; however, as to glasswashers, The Company's obligation with respect to labor associated with any repairs shall end (a) 120 days after shipment, or (b) 90 days after installation, whichever occurs first. In the event that The Company elects to repair, the labor and work to be performed in connection with the warranty shall be done during regular working hours by a Moyer Deibel authorized service technician. Defective parts become the property of The Company. Use of replacement parts not authorized by The Company will relieve The Company of all further liability in connection with its warranty. In no event will The Company's warranty obligation exceed The Company's charge for the machine. The following are not covered by The Company's warranty:

- a. Lighting of gas pilots or burners.
- b. Cleaning of gas lines.
- c. Replacement of fuses or resetting of overload breakers.
- d. Adjustment of thermostats.
- e. Adjustment of clutches.
- f. Opening or closing of utility supply valves or switching of electrical supply current.
- g. Cleaning of valves, strainers, screens, nozzles, or spray pipes.
- h. Performance of regular maintenance and cleaning as outlined in the operator's guide.
- i. Damages resulting from water conditions, accidents, alterations, improper use, abuse, tampering, improper installation, or failure to follow maintenance and operation procedures.
- j. Wear on Pulper cutter blocks, pulse vanes, and auger brush.

Examples of the defects not covered by warranty include, but are not limited to: (1) Damage to the exterior or interior finish as a result of the above, (2) Use with utility service other than that designated on the rating plate, (3) Improper connection to utility service, (4) Inadequate or excessive water pressure, (5) Corrosion from chemicals dispensed in excess of recommended concentrations, (6) Failure of electrical components due to connection of chemical dispensing equipment installed by others, (7) Leaks or damage resulting from such leaks caused by the installer, including those at machine table connections or by connection of chemical dispensing equipment installed by others, (8) Failure to comply with local building codes, (9) Damage caused by labor dispute.

Warranty of Parts: The Company warrants all new machine parts produced or authorized by The Company to be free from defects in material and workmanship for a period of 90 days from date of invoice. If any defect in material and workmanship is found to exist within the warranty period The Company will replace the defective part without charge.

#### DISCLAIMER OF WARRANTIES AND LIMITATIONS OF LIABILITY. THE COMPANY'S WARRANTY IS ONLY TO THE EXTENT REFLECTED ABOVE. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED, TO ANY WARRANTY OF MERCHANTABILITY, OR FITNESS OF PURPOSE. THE COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE REMEDIES SET OUT ABOVE ARE THE EXCLUSIVE REMEDIES FOR ANY DEFECTS FOUND TO EXIST IN THE COMPANY'S' DISHWASHING MACHINES AND THE COMPANY'S PARTS, AND ALL OTHER REMEDIES ARE EXCLUDED, INCLUDING ANY LIABILITY FOR INCIDENTALS OR CONSEQUENTIAL DAMAGES.

The Company does not authorize any other person, including persons who deal in Moyer Diebel dishwashing machines to change this warranty or create any other obligation in connection with Moyer Diebel dishwashing machines.

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# Installation Codes

The installation of the dishwasher must comply with all local electrical, plumbing, health and safety codes or in the absence of local codes, installed in accordance with the applicable requirements in the National Electrical Code, NFPA 70, Canadian Electrical Code (CEC), Part 1, CSA C22.1; and the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96.



CAUTION: Damage or problems associated with improper installation will not be covered by the limited warranty.

# **Model Description**

- High temperatue hot water sanitizing heat recovery dishwasher with built-in 70°F/82°C rise booster heater.
- 208-240VAC 1 or 3 phase
- Field convertible single to three phase
- Self-draining pump
- Automatic Start
- Fresh water rinse
- 55 racks per hour/60 second total cycle time
- Rinse sentry
- Automatic drain valve
- Heat recovery recycles heat into the booster heater and reduces steam exiting the machine

### RECEIVING



Inspect the outside of the shipping carton for signs of damage and report damage immediately to a supervisor. Remove the carton, inspect the dishwasher, and check the inside of the machine for accessories and installation parts. **Register your machine online or with the fox form at the front of the manual as soon as possible.** 

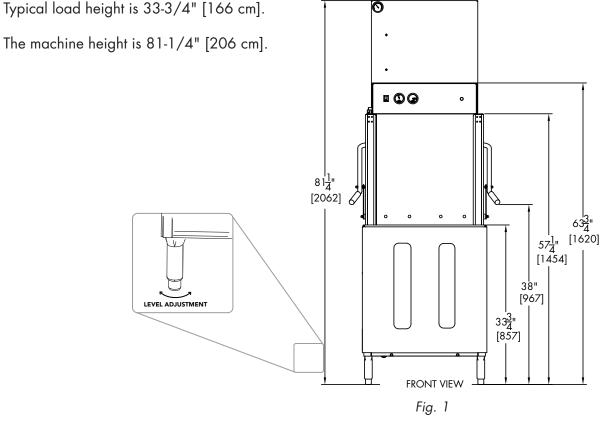


#### CAUTION:

Be careful when lifting and moving the machine to avoid damage.

### PLACEMENT

- Compare the installation site utility connections with the dishwasher utility connections to ensure they are the same.
- Minimum wall clearance is 6" [15 cm].
- Provide 20" [508 mm] on right, left and front sides of the machine
- The dishwasher has four adjustable feet for leveling. Level the dishwasher front-to-back and side-to-side.
- The machine may be installed in a straight-through or corner configuration.



1

# **Converting Straight-through to Corner Operation**

Machines are shipped from the factory for Straight-through operation. Refer to the diagrams below and on the next page to convert a Straight-through machine to a Corner operation. Dish racks enter and exit the sides of a straight-through machine. They enter the side and exit the front on corner operation machines.

To convert the dishwasher:

- 1. Convert the dishwasher before it is placed in its final position and before connecting utilities.
- 2. The temperature gauges must be clearly visible to the operator when facing the front of the machine. Door handles should move freely without interference from walls or other obstructions. Nominal wall clearance is 6" [152mm]; the minimum wall clearance is 4" [102mm].
- 3. Position the dishwasher as shown below. See the next page for to change the dish rack guides.

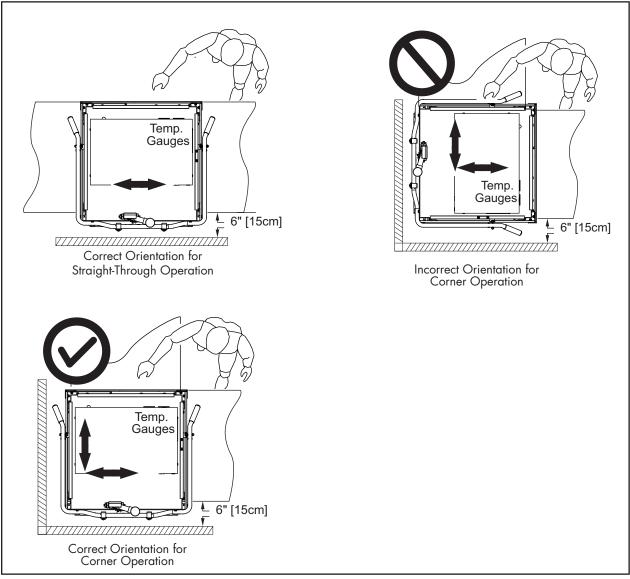


Fig. 2

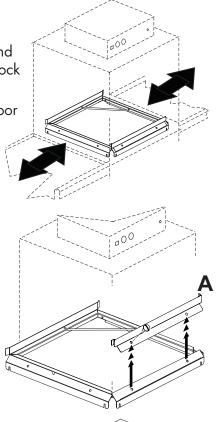
## **Converting Straight-through to Corner Operation**

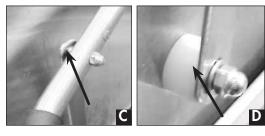
To convert track guides and door-lift for corner operation:

- Remove the rack guide (A); save the fasteners. Move (A) and re-attach as shown in the illustration at right.
- 2. Slide a dish rack through the machine to check guide rack clearance. The dish rack should move smoothly without binding or tipping on the guides.
- 3. Disconnect the door-lift bracket (B) connecting the front and wall-side door and discard. Re-install bracket bolts and lock washers.
- 4. Disconnect the door linkage arm (C) from the wall-side door and discard. Re-install the white roller (D) and hardware.
- 5. Disconnect the door linkage arm (C) from the other door Do not discard.
- 6. Lift the door handle up until the springs relax.
- 7. Adjust the door spring hooks (E) located at the rear of dishwasher to reduce door spring tension until the front and side doors open and close without binding.



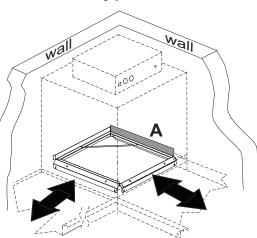
Remove the door-lift bracket connecting the front and wall-side doors.





Remove the door-linkage arm from the wall-side door and discard.

Re-install the white roller with existing hardware.





Re-adjust the door springs. Ensure doors open and close without binding.

Fig. 3

# **Dishwasher Cold Water Connection**





**CAUTION:** To prevent damage to the dishwasher supply valves, the installing plumber must thoroughly flush debris from the water supply line before connecting it to the dishwasher. Damage caused by improper installation is not covered by the limited warranty.

WATER HARDNESS OF 3 GRAINS/US GAL - 0.83 IMP GAL - 5.3mg/L OR LESS.

INSTALL A ¾" OR LARGER FULL PORT SHUT-OFF VALVE IN THE WATER SUPPLY LINE AS CLOSE TO THE DISHWASHER AS POSSIBLE FOR SERVICING.

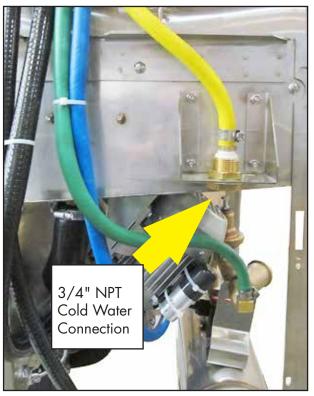
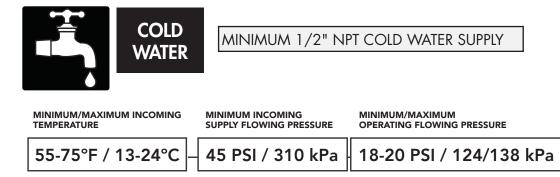


Fig. 4

### Optional Drain Water Tempering (DWT) Cold Water Connection





**CAUTION:** To prevent damage to the dishwasher supply valves, the installing plumber must thoroughly flush debris from the water supply line before connecting it to the dishwasher. Damage caused by improper installation is not covered by the limited warranty.

WATER HARDNESS OF 3 GRAINS/US GAL - 0.83 IMP GAL - 5.3mg/L OR LESS.

INSTALL A 1/2" OR LARGER FULL PORT SHUT-OFF VALVE IN THE WATER SUPPLY LINE AS CLOSE TO THE DISHWASHER AS POSSIBLE FOR SERVICING.





Fig. 5

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Installation
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# **Drain Connection**



GRAVITY DRAIN, 1" NPT CONNECTION



**CAUTION:** The dishwasher drain connection must comply with all local plumbing, health and safety codes. Damage caused by improper installation is not covered by the limited warranty

AUTOMATIC ELECTRIC DRAIN VALVE

MAXIMUM FLOW RATE: 15 US GPM/12.5 IMP. GPM/ 57LPM

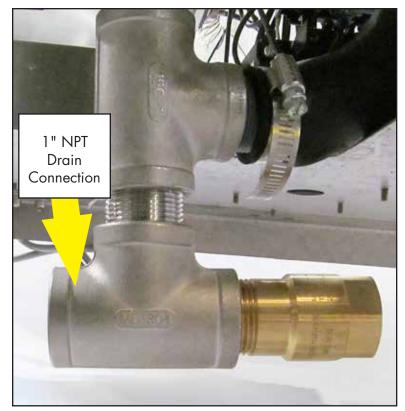


Fig. 6

### **Drain Valve Manual Operation**



- To manually operate the new valve, four 2.5mm socket allen screws must be removed, the valve coil removed, and the valve globe rotated with pliers.
- The valve coil has an indicator line showing valve position. Ensure valve is reassembled in the same position.





Remove four 2.5mm coil retaining allen screws.

Remove the coil from the valve body.



Using pliers, turn the valve body key to the vertical position to open valve.

Reassemble in reverse order.

Fig. 7

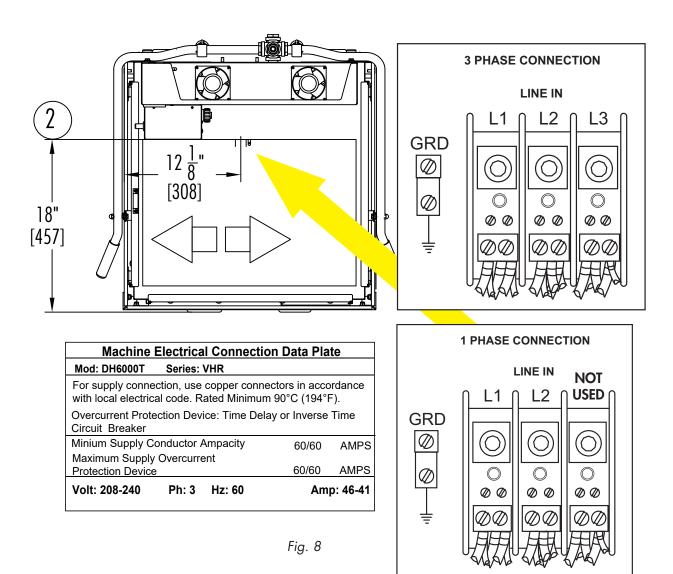
# **Electrical Connection - Single or Three Phase**



#### WARNING:

Electrocution hazard when working on energized circuits. Disconnect power at the main breaker or service disconnect switch, then lock out and tag it to indicate that work is being performed on the circuit.

- 1. Position the machine near its final location.
- 2. Remove top-mounted control cabinet cover.
- Route conduit to terminal block at rear of control cabinet. Be sure to leave a 6 foot / 2 meter service loop.
- 4. <u>Refer to the MACHINE ELECTRICAL CONNECTION DATA PLATE located adjacent</u> to the input terminal block.





### **Converting 3-Phase to 1-Phase Operation**

Convert 3 Phase to 1 Phase by installing a jumper wire on the input power block and rewiring the wash tank and booster tank heaters. A jumper wire, jumper bars and a new data plate are stowed inside the control cabinet.

#### **TO CONVERT:**

#### Install Main Terminal Block Jumper Wire

- 1. Disconnect all power to the machine.
- 2. Remove top control cabinet cover.
- 3. Connect jumper wire (shipped inside control cabinet) between L2 and L3 on output side of block.
- 4. Connect power on L1 and L2 of the terminal block.

#### Rewire Wash Tank Heater Element for 1PH

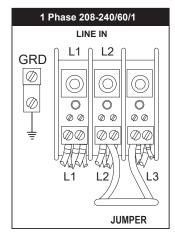
- 1. Remove the paper insulator and jumper bars from the heater terminals.
- 2. Additional short jumper bars are stowed with the new data plate.
- 3. Reposition the jumper bars for 1PH as shown.
- 4. Reconnect the heater wires as shown.
- 5. Reinstall the paper insulator.

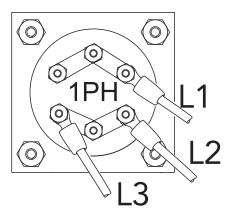
#### Rewire Booster Heater Element for 1PH

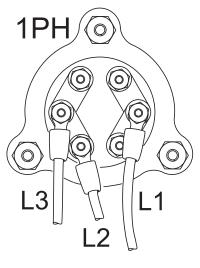
- 1. Remove the booster heater element cover.
- 2. Remove the paper insulator and jumper bars from the heater terminals.
- 3. Install the jumper bars for 1PH as shown at right.
- 4. Additional short jumper bars are stowed with the new data plate.
- 5. Connect the wires to the terminals as shown at right.
- 6. Reinstall the paper insulator and the booster heater element cover.

#### ATTENTION:

Affix the new data plate on top of the existing machine data plate to complete the conversion.









#### Installation



# Converting 3-Phase to 1-Phase Operation

Convert 3 Phase to 1 Phase by installing of a jumper wire on the input power block and rewiring the wash tank and booster tank heaters. A jumper wire, jumper bars and a new data plate are stowed inside the control cabinet.

#### TO CONVERT:

#### Install Main Terminal Block Jumper Wire

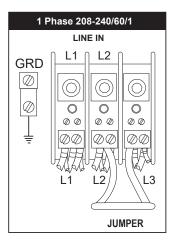
- 1. Disconnect all power to the machine.
- 2. Remove front panel to access the power terminal block.
- 3. Connect jumper wire (shipped inside control cabinet) between L2 and L3 on output side of block.
- 4. Connect power on L1 and L2 of the terminal block.

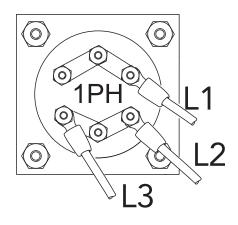
#### Rewire Wash Tank Heater Element for 1PH

- Remove the paper insulator and jumper bars from the heater terminals.
- 2. Additional short jumper bars are stowed with the new data plate.
- 3. Reposition the jumper bars for 1PH as shown.
- 4. Reconnect the heater wires as shown.
- 5. Reinstall the paper insulator.

#### Rewire Booster Heater Element for 1PH

- 1. Remove the booster heater element cover.
- Remove the paper insulator and jumper bars from the heater terminals.
- 3. Install the jumper bars for 1PH as shown.
- Additional short jumper bars are stowed with the new data plate.
- 5. Connect the wires to the terminals as shown.
- 6. Reinstall the paper insulator and the booster heater element cover.





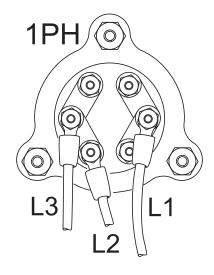


Fig. 10



# Vent Fan Control Connection

- A vent fan control signal is provided on a terminal block located inside the top-mounted control cabinet. The terminal locations are clearly marked.
- 2. The 120VAC signal is designed only to operate an external vent fan contactor (supplied by others) and is limited to 0.5 AMP maximum load and is available when the dishwasher power switch is turned ON.

#### DO NOT CONNECT A VENT FAN MOTOR TO THE VENT FAN TERMINALS (FIG 11).

### **Chemical Dispenser Connections**

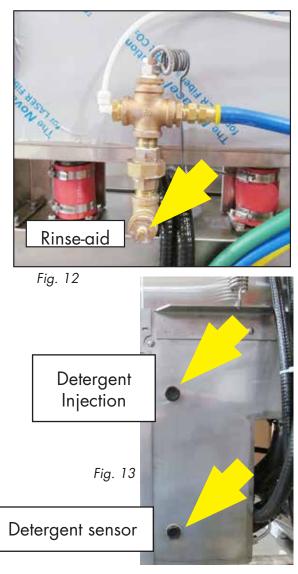
**NOTE:** A commercial grade non-chlorinated detergent is recommended.

Chemical dispensing system connections are provided.

- Detergent and rinse-aid 120VAC, Max. 1 Amp load control signals are located inside the top-mounted control cabinet. Connection points are located on the terminal block (Fig. 11).
- The rinse-aid connection is 1/8" NPT fitting located at the rear of the machine (Fig. 12).
- Two 7/8" holes are provided on the wash tank rear for detergent injection and sensor.



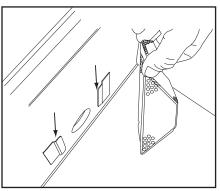
Fig. 11



#### Set-up

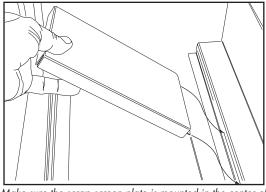
# Set-up Check List

- 1. Remove any protective film from dishwasher. Check the interior for foreign material.
- 2. Make sure the dishwasher is permanently located.
- 3. Make sure all utility connections are complete.
- 4. Make sure the chemical supply containers are full.
- 5. Make sure the pump suction screen is in place.



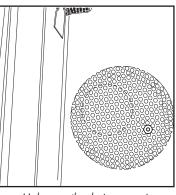
Make sure the pump suction strainer is in place.

6. Make sure the drain screen is clean and unobstructed by debris.



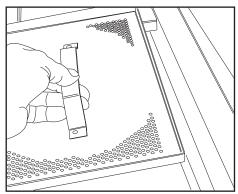
Make sure the scrap screen plate is mounted in the center of the wash tank and separating the scrap screens.

Fig. 14



Make sure the drain screen is unobstructed.

7. Make sure the scrap screen filler plate and scrap screens are installed and firmly seated.



Make sure the scrap screens are in place.

- 8. Make sure the spray arms are in place and that they spin freely. The spray arms are interchangeable.
- 9. Make sure the doors operate smoothly without binding.
- 10. Turn cold water supply on and check for leaks.

## Set-up

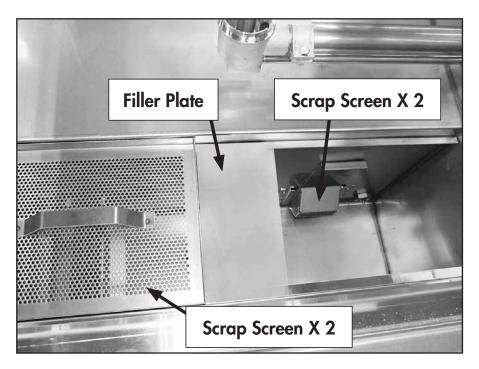


Fig. 15

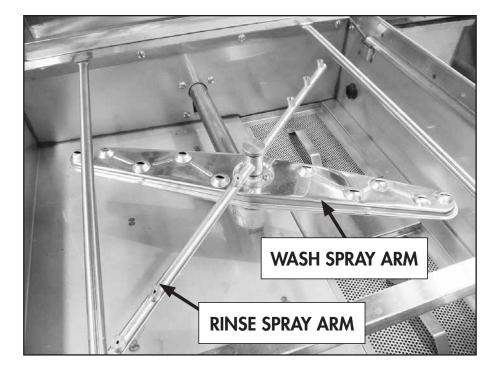
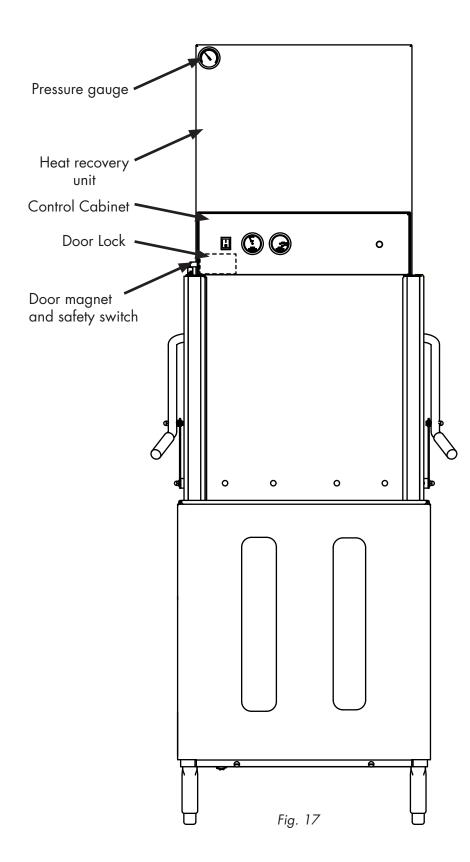


Fig. 16

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Operation
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# Controls



## Normal Wash Mode

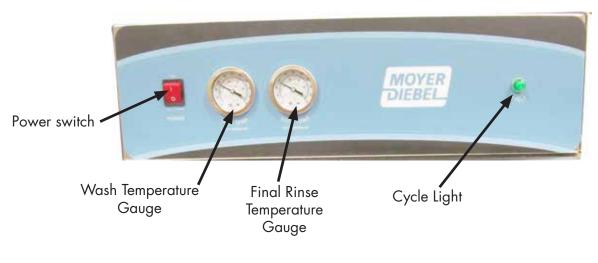


Fig. 18

- 1. Turn the water supply on.
- 2. Make sure the spray arms and the scrap screens are in place.
- 3. Turn the main power on at the building circuit breaker.
- 4. Close the dishwasher front door.
- 5. Push the dishwasher Power Switch to the ON position. The power switch will illuminate and the machine will fill with water.
- 6. Check the pressure gauge at the top of the HR unit as the machine fills and make sure the incoming water pressure is between 18-20 psi. Adjust the PRV if required.
- 7. Wait 10 minutes for the WASH temperature gauge to indicate a minimum of 150°F/66°C.
- 8. Load soiled wares into a dish rack. Place plates, glasses, cups and bowls in a peg rack. Place utensils in a single layer in a flat-bottom rack. Place pots and pans in a flat-bottom rack. Do not overload the dish racks.
- 9. Slide one dish rack into the wash compartment making sure wares do not interfere with the rotating spray arms. Do not wash more than one dish rack at a time

#### NOTE:

Opening the door during the cycle will stop the machine. The cycle will resume where it left off when the doors are closed.

The doors can not be opened during the heat recovery (HR) operation.

Continued on next page.

# Normal Wash Mode (continued)

10. Close the front doors, the wash cycle will begin automatically and the green cycle light will illuminate. The door lock will lock the doors when the HR unit removes heat and steam from the wash chamber.

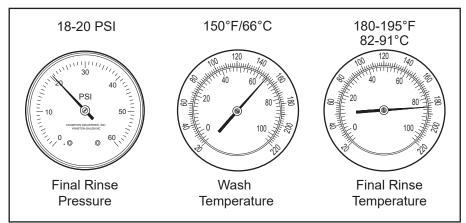
#### Cycle Times

Wash =	40 secs.
Final Rinse =	12 secs.
Dwell =	17 secs.
HR cycle =	30 secs.
Total Cycle =	260 secs.

11. Opening the door when the dishwasher is in-cycle will stop the dishwasher. The cycle will resume

automatically when the dishwasher door is closed.

- 12. The final rinse cycle begins at the end of the wash cycle and runs for approximately 12-seconds.
- 13. Check the FINAL RINSE temperature gauge during the final rinse making sure it indicates a minimum of 180-195°F/82-91°C.
- 14. Check the pressure gauge located at the top of the dishwasher to ensure that the final rinse pressure maintains a flowing pressure between 18-20 PSI.
- 15. At the end of the rinse cycle, the in-cycle light will go out. Open the door and remove the clean rack of wares.
- 16. Refer to the **Automatic Drain Cycle** on the next page for the procedures to drain the dishwasher.



The pressure gauge is located at the top left corner of the HR unit. The wash temperature gauge and the final rinse temperature gauges are located on the front of the control cabinet.



### **Rinse Sentry Mode**

The final rinse water temperature must be a minimum of 180°F/82°C during the final rinse cycle to ensure that all wares are sanitized. If for any reason, the hot water temperature in the booster tank can not provide this temperature, the dishwasher will enter a Rinse Sentry Mode of operation and extend the cycle time.

The Rinse Sentry changes the Normal Mode as described below:

- 1. The Rinse Sentry constantly monitors the water temperature inside final rinse booster.
- 2. If the temperature inside the booster heater falls below 180°F/82°C then the Rinse Sentry will extend the wash cycle time until the booster heater water temperature reaches the proper temperature.
- 3. The incycle light will remain illuminated during the Rinse Sentry Mode.
- 4. The RINSE water temperature gauge must be monitored to ensure that a minimum of 180-195°F/82-91°C. is maintained during the rinse cycle.
- 5. An extraordinarily long wash cycle may indicate a low incoming water temperature or a problem with the booster heater operation.

#### DO NOT REMOVE WARES UNTIL THE FINAL RINSE CYCLE HAS SANITIZED THE WARES AND THE GREEN CYCLE LIGHT GOES OUT.

### **Automatic Drain Cycle**

The dishwasher can be drained automatically when the dishwasher has completed a n ormal wash cycle or whenever the dishwasher is idle.

To drain the dishwasher:

- 1. Turn the dishwasher Power Switch OFF. The automatic drain valve will open and the machine will drain.
- 2. The drain valve will remain open for 10 minutes for the operator time to flush the interior with fresh water during a cleaning operation.
- 3. When 10 minutes has elapsed, the drain valve will close.
- 4. The automatic drain cycle is complete.

#### NOTE:

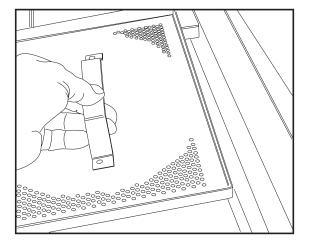
The automatic drain cycle can be repeated after 10 minutes by turning the power Switch ON and immediately OFF. The dishwasher will drain for another 10 minutes and then turn off.

#### Cleaning

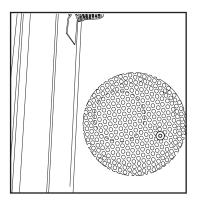
### Cleaning

#### After each meal period or every 8 hours of continuous operation.

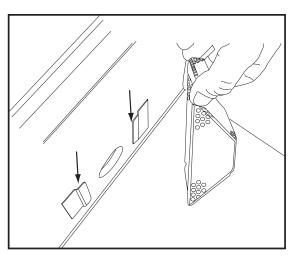
- 1. Press the lighted power switch to the OFF position. The power switch light will go out and the automatic drain cycle will operate for 10 minutes.
- 2. Flush the interior of the machine with fresh water.
- 3. Remove the scrap screens and remove debris in a waste container.
- 4. Flush the scrap screens making sure to back-flush.
- 5. Do not strike the scrap screens against solid objects.
- 6. Flush the wash tank, the pump suction strainer and drain screen.
- 7. Check the wash tank for foreign material and clean as required.
- 8. Replace pump suction strainer and scrap screens.
- 9. Make sure that spray arms turn freely.
- 10. Check the chemical containers and refill as required.
- 11. Close the door and turn the power switch ON. The machine will refill with fresh hot water.
- 12. Resume normal operation.



Clean scrap screens.



Clean drain screen.



Clean pump suction strainer

Fig. 20

#### After each meal period or every 8 hours of continuous operation.

- 1. Perform Steps 1-10 on the previous page.
- 2. Remove the upper and lower rinse and wash spray arms. The spray arms are interchangeable.
- 3. Unscrew the upper and lower rinse arm spindles (A). Remove the rinse arm assemblies
- 4. Clean the final rinse arm nozzles using a small paper clip (B).
- 5. Remove the rinse arm end plugs (C) if necessary, and flush the rinse arm with clean water.
- 6. Re-install the rinse arm end plugs if they were removed.
- 7. Remove the wash spray arms and flush with clean water.
- 8. DO NOT USE STEEL WOOL TO CLEAN THE INTERIOR OF THE MACHINE.
- 9. Contact the chemical supplier for de-liming if required (see next page).
- 10. Wipe the interior and exterior of the machine with a soft cloth and a mild detergent. DO NOT HOSE THE EXTERIOR OF THE MACHINE WITH WATER.
- 11. Reassemble the dishwasher and leave the door open to allow overnight drying.

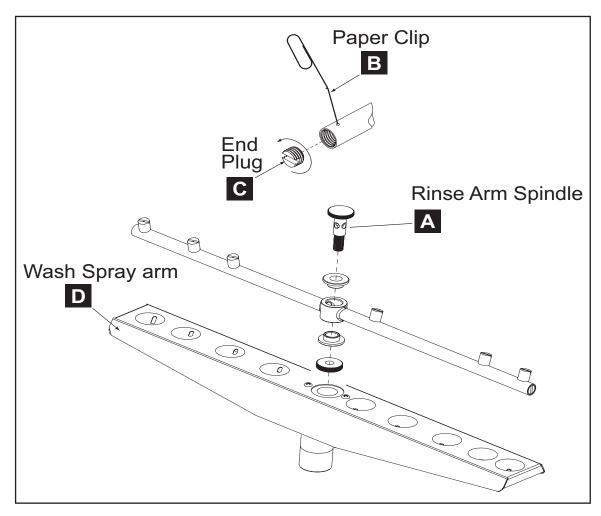


Fig. 21



Minerals accumulate on the interior surfaces of the dishwasher. The deposits have a white haze and, in cases of heavy accumulation, may appear as a granular solid. The generic name for mineral deposits is lime. The removal of lime deposits is called deliming. Your dishwasher should be de-limed regularly; how often will depend on the mineral content of your water.

Inspect your machine interior for lime deposits. If deliming is required, a deliming agent should be used for best results in accordance with the chemical supplier's instructions.



#### DANGER

Serious injury may result when deliming solution is mixed with sodium hypochlorite *(chlorine bleach)* sanitizing agent. Mixing may cause hazardous gases to form. Deliming solution and other acids must never be mixed with chlorine, iodine, bromine, or fluorine.



#### CAUTION:

Skin contact with deliming solutions can cause severe irritation and possible chemical burns. Always wear protective clothing and goggles when handling chemicals.

#### NOTE

Contact your chemical supplier for specific safety procedures and instructions for the use of the deliming solution supplied for the dishwasher. Deliming solution or other chemicals are not supplied by the dishwasher manufacturer.

### Maintenance

#### **Daily Maintenance**

- 1. Check all of the wash arm and rinse arm spray jets and clean as necessary.
- 2. Make sure the water supply is on and that the drain is not clogged.
- 3. Check the temperature gauges and/or displays to ensure that they are operating.
- 4. Make sure dish racks are in good condition.
- 5. Check the chemical containers and refill as required.
- 6. Follow the cleaning procedures given above.

#### Weekly Maintenance

- 1. Perform Steps 1-5 in the Daily Maintenance.
- 2. Inspect water lines for leaks.
- 3. Check for water leaks underneath the dishwasher.
- 4. Make sure the floor drain and/or piping handles the drain water discharge.
- 5. Make sure the dishwasher is level.
- 6. Clean accumulated lime deposits from the wash tank heating element.
- 7. Inspect the scrap screen and replace it if damaged.
- 8. Check the spray arms and replace or repair if damaged.

#### Troubleshooting

# Troubleshooting

Perform the basic checks below before calling an authorized service agent:

- 1. Make sure that the main water supply is turned on.
- 2. Make sure that the main power is turned on.
- 3. Make sure the machine is clean.

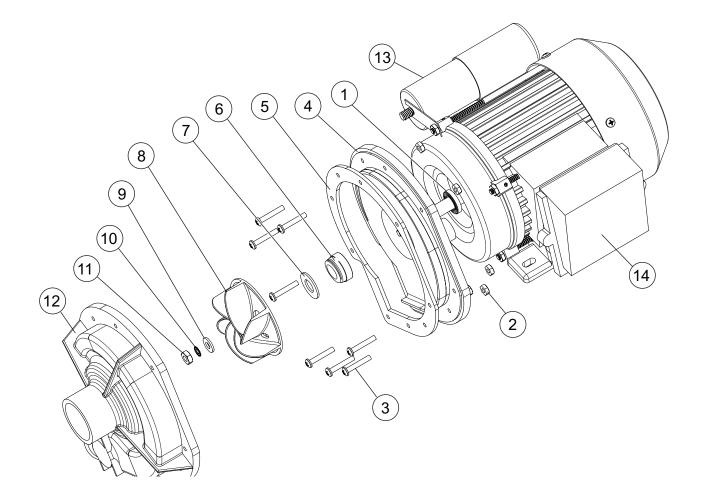
Condition	Cause	Solution
Dishwasher will not run.	Door not closed. Main power OFF. Dishwasher OFF.	Close door completely. Check breaker on panel. Turn dishwasher ON.
Low or no water.	Main water supply off. PRV setting incorrect Line strainer clogged. Solenoid valve defective.	Open supply valve. Adjust the PRV setting Contact Service Agent. Contact Service Agent.
Chemicals won't feed into dishwasher.	Chemical supply low. Pick-up tube clogged Supply tubing damaged. Supply tubing kinked.	Refill chemical container. Clean/replace tube. Replace tubing. Straighten tubing.
Poor wash results.	Wares incorrectly loaded. in dishrack.	Reposition wares or reduce amount of wares.
	Clogged screens. Clogged spray arms. Chemical injectors not feeding. Thermostat defective. Detergent motor defective. Water temperature low.	Clean screens. Clean spray arms. Contact Chemical Supplier. Contact Service Agent. Contact Service Agent Contact Service Agent
Dishwasher stays in wash cycle.	Rinse Sentry extends wash mode to allow final rinse water booster temperature to reach 180°F/82°C.	Contact Service Agent.
Dishwasher will not drain.	Drain screen clogged. Drain screen clogged. Drain valve defective.	Clean drain screen. Contact Service Agent. Clean drain screen.
Water spraying out of pressure gauge line.	Pressure gauge not installed in waterline.	Contact Service Agent. Pressure gauge stowed in dish rack when shipped.

# Service Replacement Parts

### Illustrations

### Page

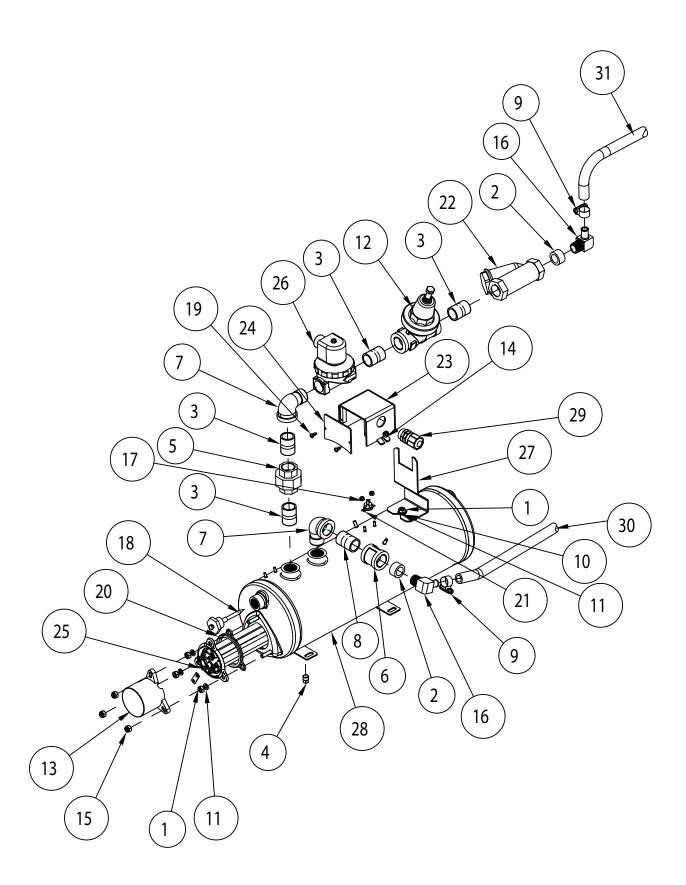
Wash Pump/Motor	24
Booster	26
Control Panel	28
Door Lock	30
Heat Recovery Unit	32
Wash System	34
Wash Tank	36
Hood and Doors	38
Tracks	40
Dish Racks	42
Electrical Schematic	44
Timing Chart	45



ltem No.	Part No.	Description	Qty.
1	114134	SLINGER, WATER	1
2	114135	NUT	9
3	114136	SCREW	9
4	114137	BACKPLATE, PUMP	1
5	114138	GASKET, PUMP	1
6	114139	SEAL, PUMP	1
7	114140	WASHER	1
8	114141	IMPELLER	1
9	114142	WASHER	1
10	114143	WASHER, LOCK	1
11	114144	NUT, IMPELLER	1
12	114145	HOUSING, PUMP	1
13	114322	CAPACITOR $15\mu F$	1
14	114525	PUMP/MOTOR ASSEMBLY COMPLETE 220VAC/60/1	1

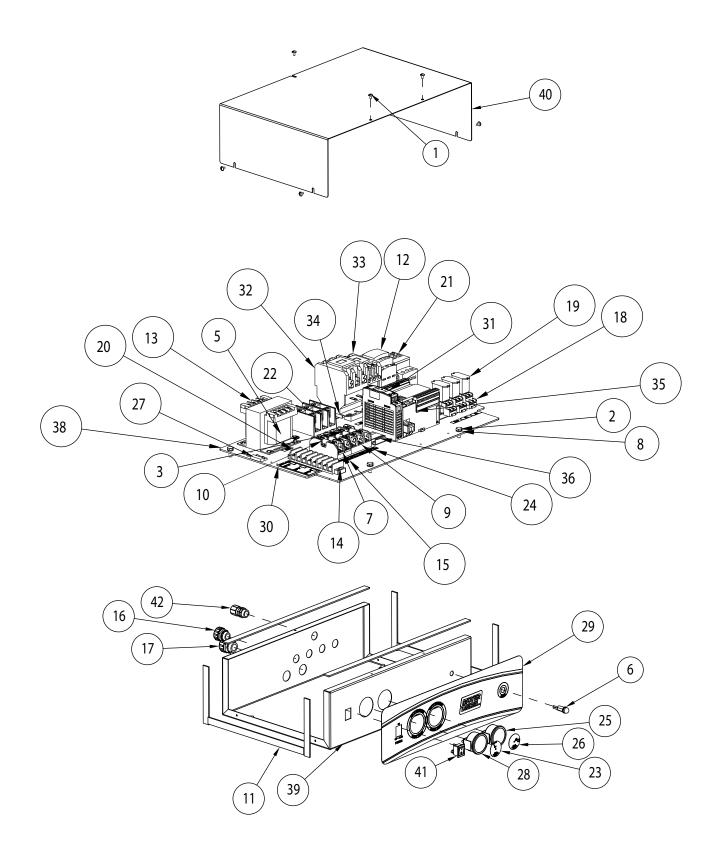
#### NOTE:

THE MOTOR CANNOT BE ORDERED AS A SEPARATE REPLACEMENT PART.



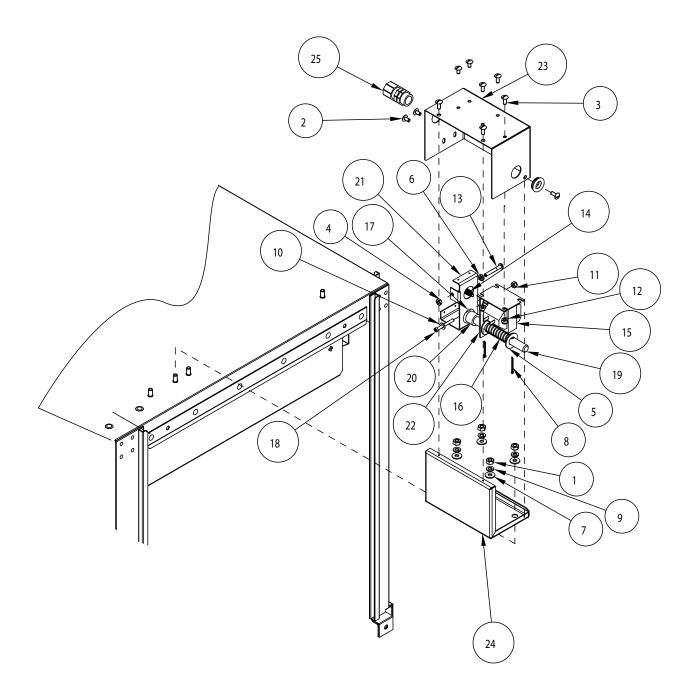
ltem No.	Part No.	Description	Qty.
1	100003	HEX PLAIN NUT, 1/4-20	4
2	100171	BUSHING, RED FACE, 3/4" 1/2" BRASS	2
3	100184	NIPPLE, 3/4" X CLOSE, BRASS	4
4	100210	PLUG, 1/8" NPT SQ. HEAD, SST	1
5	100571	UNION, 3/4" NPT BRASS	1
6	102415	COUPLING, 3/4" NPT BRASS	1
7	102444	ELBOW, STREET, 3/4' NPT X 90° BRASS	2
8	104551	NIPPLE, 3/4" NPT X 1-1/2" LG. BRASS	1
9	105994	CLAMP, HOSE M10 SST GEAR -TYPE	3
10	106026	WASHER, FLAT 1/4" SST	1
11	106482	WASHER, LOCK, 1/4" SPLIT SST	4
12	107550	VALVE, PRESSURE REGULATING 3/4" NPT BRONZE	1
13	107908	COVER, HEATER	1
14	107966	hex grip nut, 10-32 SST W/NYLON	2
15	107967	HEX GRIP NUT, 1/4-20 SST W/NYLON	3
16	108528	BARB, HOSE EL, 1/2"NPT X 1/2"H BRASS	2
17	108954	HEX GRIP NUT, 6-32 SST W/NYLON	2
18	109069	PROBE, THERMOSTAT W/CAPILLARY	1
19	109835	SCREW #8, X 1/2" PAN PHILLIPS HEAD	2
20	109985	O-RING, BOOSTER HEATER	1
21	113604	Thermostat, snap, fixed disc 212°f	1
22	110768	STRAINER, LINE3/4" BRONZE FEMALE	1
23	110929	BOX, ELECTRIC BOOSTER, THERMOSTAT	1
24	110930	COVER, BOOSTER THERMOSTAT BOX	1
25	111233	HEATER, 7.5KW/10KW, 208/240V 3PH, BOOSTER	1
26	111437	VALVE, SOLENOID 3/4"NPT HW	1
27	333154	BRACKET, PIPING SUPPORT	1
28	0509042	BOOSTER TANK, WELDED	1
29	B500335	CORD, GRIP 1/2" NPT	1
30	421075	HOSE ASSY., FINAL RINSE, 75" LG.	1
31	207777	HOSE, 1/2" ID X 69" LG PUSH-LOK GREEN	1

#### **Control Cabinet**



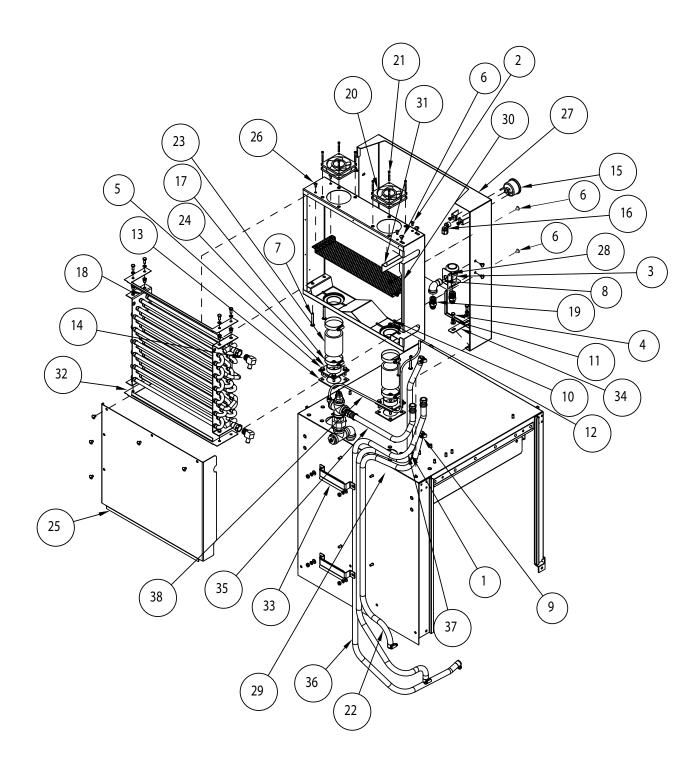
## **Control Cabinet**

ltem No.	Part No.	Description	Qty.
1	100007	SCREW, TRUSS HEAD 10-32 X 3/8" SST	7
2	100735	BOLT, HEX HEAD, 1/4-20 X 5/8" SST	4
3	100929	FUSE, ATMR-30 600V, ONE-TIME	3
4	102564	SCREW, ROUND HEAD, 8-32 X 3/8" SST	20
5	103310	GROUND LUG	1
6	106364	INDICATOR LIGHT, GREEN	1
7	106402	FUSE BLOCK, 2-POLE	1
8	106482	WASHER, LOCK 1/4" SPLIT SST	4
9	106925	FUSE BLOCK, 3-POLE	1
10	107289	FUSE, ATDR, 2.5A, LPCC-2.5 600V	2
11	107431	Gasket, steam 1/8" X 3/4" poron	8
12	108122	CONTACTOR, 3-POLE	1
13	108397	TRANSFORMER, 150VA	1
14	110159	SCREW, ROUND HEAD, 8-32 X 5/8" SST	2
15	110569	LABEL, MAX AMP 2.5A	1
16	110836	FITTING, STRAIGHT, 1/2" SEALTITE	1
17	110838	FITTING, STRAIGHT, 3/4" SEALTITE	1
18	111036	Socket, relay 2-pole	3
19	111068	RELAY, 2-POLE, 10A, 120V	3
20	111331	TERMINAL STRIP, 8-POLE	1
21	111628	STARTER, MOTOR, 4.0-6.3A	1
22	111833	INPUT TERMINAL BLOCK	1
23	112086	OVERLAY 150°F WASH	1
24	113506	LABEL MAX AMP 30A	1
25	113622	TEMPERATURE GAUGE, 4FT. GAS ACTUATED	1
26	113644	OVERLAY, RINSE	1
27	113719	REED SWITCH	1
28	114236	THERMOMETER, GAS FILLED, 8FT. LEAD	1
29	114584	DECAL, CONTROL CABINET	1
30	114760	LABEL, DETERGENT, RINSE-AID, VENT FAN	1
31	115607	SLIM 24VDC, 30W POWER SUPPLY, PS5R-SC24	1
32	116166	CONTACTOR, 60 FLA, 3-POLE, 120VAC COIL	1
33	116167	CONTACTOR, 40 FLA, 3-POLE 120VAC COIL	1
34	116504	BASE, DIN RAIL ADAPTER	1
35	116888	PLC, SCHNEIDER TM221CE24R	1
36	204558	DIN RAIL, 35MM X 11.75"	1
37	206016	DIN RAIL, 35MM X 9.25"	1
38	337426	INNER PANEL, CON. CABINET (337305)	1
39	339443	CONTROL CABINET, WELDMENT	1
40	339444	COVER, CONTROL CABINET	1
41	0512220	SWITCH, ROCKER DPST, 125V NEON	1
42	B500355	CORD GRIP, 1/2" NPT	1



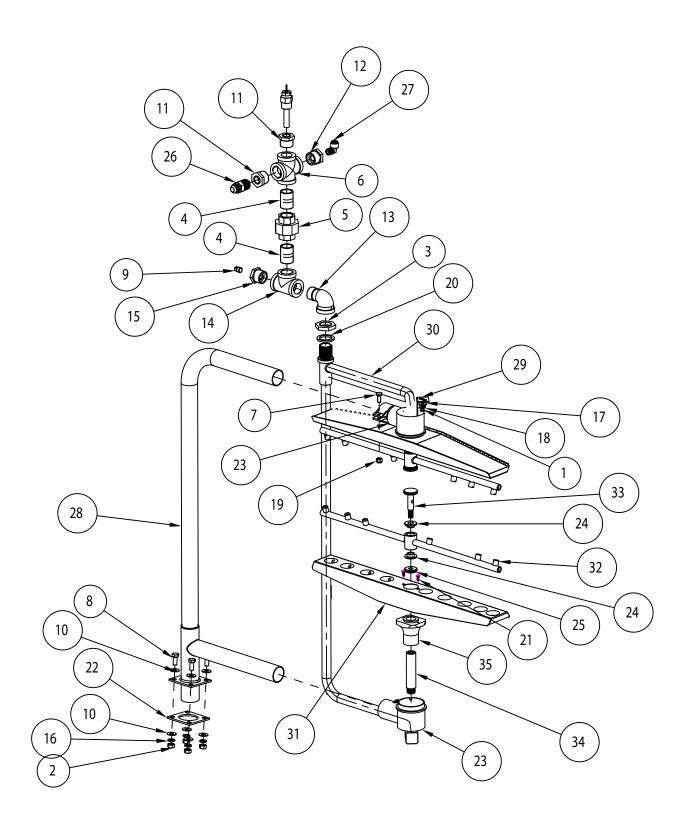
Door	Lock
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ltem No.	Part No.	Description	Qty.
1	100003	HEX PLAIN NUT, 1-4-20 SSST	4
2	100007	SCREW, TRUSS HEAD 10-32 X 3/8" SST	4
3	100097	SCREW, TRUSS HEAD 10-32 X 1/2" SST	6
4	100194	HEX GRIP NUT, 10-32 SST	1
5	104882	WASHER, FLAT, .531" X .062" X .062 SST	3
6	104985	HEX PLAIN NUT, 10-32 SST	1
7	106026	WASHER, FLAT 1/4" SST	4
8	106035	COTTER, PIN 3/32" X 1 "UNEVEN	2
9	106482	WASHER, LOCK 1/4" SPLIT SST	4
10	107033	WASHER, FLAT	4
11	107965	HEX GRIP NUT, 8-32/W NYLON	1
12	107966	hex grip nut, 10-32 W/Nylon	1
13	114366	SCREW PAN HEAD PHILLIPS, 10-32 X 1-3/8" SST	3
14	115509	EXTENSION SPRING	1
15	116685	SOLENOID, 1/8"-1"CONTINUOS DUTY, 120V/60HZ	1
16	116687	SPRING, COMPRESSION DOOR INTERLOCK	1
17	116688	BUSHING, SNAP-N, SMOOTH BORE, 1/2" DIA.	2
18	116805	SCREW, FILLISTER HEAD, 8-32 X 1-12"SST	1
19	207585	ROD, DOOR INTERLOCK	1
20	207888	BUMPER HOSE, DOOR INTERLOCK, ROD	1
21	338086	BRACKET, LOCKING ROD, SUPPORT, DOOR INTERLOCK	1
22	338087	PLATE, ROD ACTUATOR, DOOR INTERLOCK	1
23	339441	COVER, DOOR LOCK, LH MOUNT	1
24	339442	BASE, DEVP, DOOR LOCK	1
25	B50335	CORD GRIP, 1/2" NPT	1

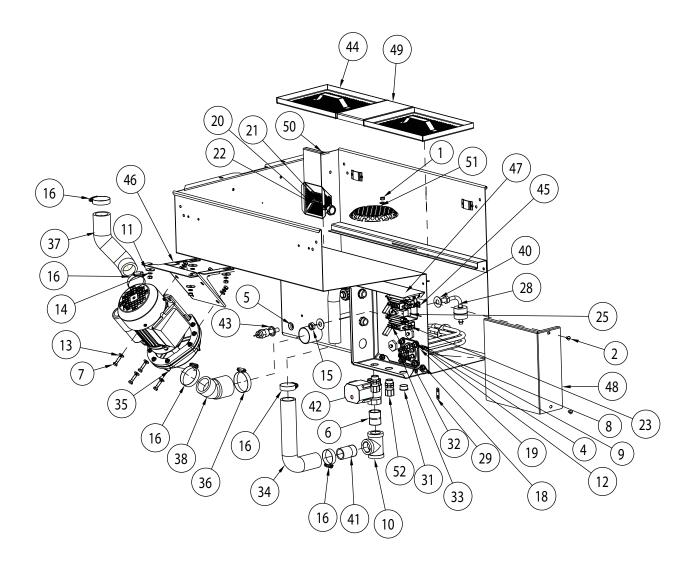


## Heat Recovery Unit

ltem No.	Part No.	Description	Qty
1	100003	HEX PLAIN NUT, 1-4-20 SST	8
2	100097	SCREW TRUSS HEAD, 10-32 X 1/2" SST	4
3	100500	VACUUM BREAKER, 1/2" NPT BRONZE	1
4	100735	BOLT, HEX HEAD, 1/4-20 X 5/8" SST	8
5	100738	BOLT, HEX HEAD, 1/4-20 X 1" NPT SST	8
6	100778	SCREW TRUSS HEAD, 1/4-20 X 2" SST	11
7	100782	SCREW TRUSS HEAD, 1/4-20 X 2" SST	4
8	102438	ELBOW, STREET, 1/2" X 90° BRASS	1
9	105994	CLAMP, HOSE M10 GEAR-TYPE	4
10	106026	WASHER, FLAT 1/4" SST	18
11	106482	WASHER, LOCK, 1/4" SPLIT SST	24
12	107967	HEX GRIP NUT, 1/4-20 SST W/NYLON	2
13	108345	GASKET, HEATER, STANDPIPE	2
14	108528	BARB, HOSE, EL 1/2" NPT X 1/2" H BRASS	2
15	109812	GAUGE, PRESSURE, 0-60 PSI, PANEL	1
16	111100	ELBOW. 1/4" D X 1/8" NPT, FEM PLASTIC	1
17	114720	CLAMP, HOSE M36 W/CS SCREW	4
18	114931	COIL, ASSEMBLY	1
19	115101	COUPLING, MALE 1/2" NPT X 1/237D FLARE JC BRASS	2
20	116783	FAN, NMB, 24VDC, 92MM, 91.8 CFM	2
21	116805	SCREW, FILLISTER HEAD, 8-32 X 1-1/2" SST	8
22	207782	HOSE, 1/2"46" LG., PUSH-LOK YELLOW	1
23	207789	HOSE, 2" ID X 2-1/4" BUNA	2
24	338848	FLANGE, WELDMETNT, DRAIN	2
25	339382	HR COVER	1
26	339385	HEAT EXCHANGER, ENCLOSURE	1
27	339393	HEAT EXCHANGER, WRAP	1
28	339394	VACUUM BREAKER, MOUNT	1
29	339427	DRIP PAN, DEV.HR COIL	2
30	339428	AIR DIFFUSER, COIL ASSY.	1
31	339429	FILLER, TOP CORNER, HR COIL	1
32	339430	FILLER, TOP/BOTTOM HR COIL	2
33	339470	BRACKET, HOSE RETAINER	2
34	339471	PLATE, STIFFERNER, WRAP MOUNTING	2
35	421074	HOSE ASSY, FINAL RINSE 13.5" LG.	1
36	421075	HOSE ASSY, FINAL RINSE, 75" LG	1
37	207770	HOSE, 1/2ID X 69" LG. PUSH-LOCK GREEN	1

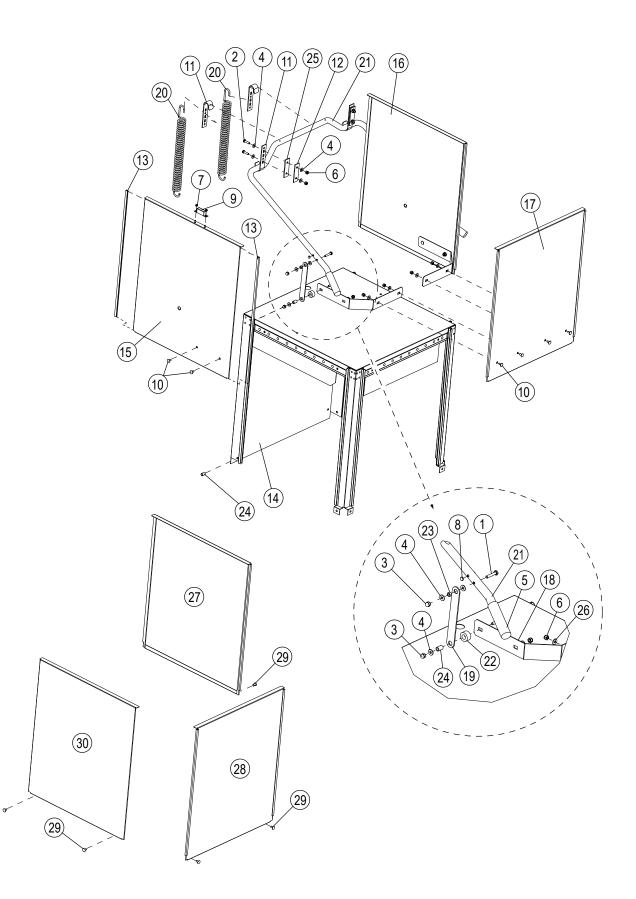


ltem No.	Part No.	Description	Qty.
1	100003	HEX PLAIN NUT, 1-4-20 SST	1
2	100154	HEX PLAIN NUT, 5/6-18 SST	4
3	100156	LOCKNUT, 3/4" NPT BRASS	1
4	100184	NIPPLE, 3/4" NPT X CLOSE BRASS	2
5	100571	UNION, 3/4" NPT BRASS	1
6	100599	CROSS, 3/4"NPT BRASS	1
7	100735	BOLT, HEX HEAD, 1/4-20 X 5/8" SST	2
8	100739	BOLT HEX HEAD, 5/16-18 X 3/4" SST	4
9	101259	PLUG, 1/8" SQ. HEAD BRASS	1
10	102376	WASHER, FLAT 5/16"	8
11	102392	BUSHING, REDUCING, 3/4" X 1/2" NPT BRASS	2
12	102403	BUSHING, REDUCING, 3/4" X 1/4" NPT BRASS	1
13	102444	ELBOW, STREET, 3/4" X 90° BRASS	1
14	102521	TEE, 3/4" NPT BRASS	1
15	105976	BUSHING, REDUCING,3/4" X 1/8" NPT BRASS	1
16	106013	WASHER, LOCK 5/16" SPLIT SST	4
17	106026	WASHER, FLAT 1/4" SST	1
18	106482	WASHER, LOCK, 1/4" SPLIT SST	1
19	107967	hex grip nut, 1/4-20 W/NYLON	2
20	108620	GASKET, RINSE MANIFOLD, 3/4" PIPING	1
21	109835	SCREW #8 X 1/2" PAN PHILLIPS	4
22	109854	GASKET, WASH STANDPIPE	1
23	109864	WASHARM, HUB SUPPORT	2
24	113514	BEARING, RINSE ARM	4
25	114556	NUT, RINSE ARM	2
26	115101	COUPLING, MALE, 1/2" NPT X 1/237D FLARE JC BRASS	1
27	116989	ELBOW, 1/4" OD TUBE X 1/4"MPT PLASTIC TUBE FITTING	1
28	332489	STANDPIPE, WELDMENT WASH	1
29	332552	BRACKET, SUPPORT	1
30	332553	MANIFOLD WELDMENT, STANDPIPE, RINSE	1
31	332761	WASHARM, WELDMENT	2
32	332762	RINSE ARM, WELDMENT	2
33	0507433	SPINDLE, RINSE ARM	2
34	0507445	SPINDLE, WASH ARM	2
35	0507446	WASHARM, BEARING	2



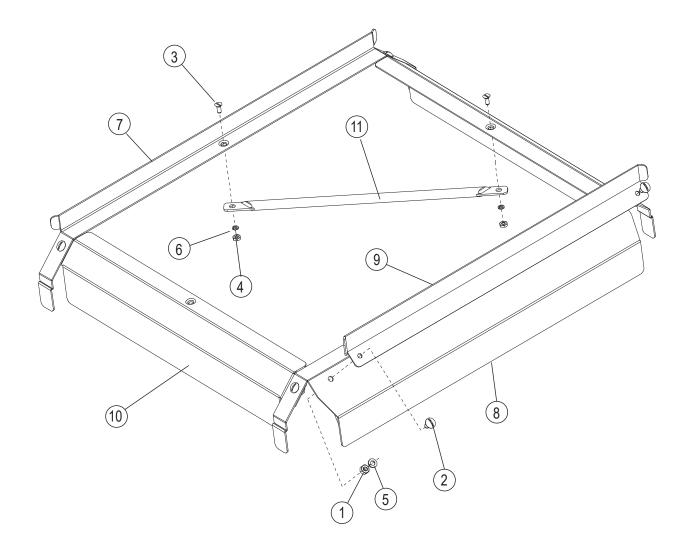
### Wash Tank

ltem No.	Part No.	Description	Qty.
No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 8 9 40 41 42	No. 100003 100097 100154 100547 100694 100738 100740 102376 102530 104925 106013 106026 106482 107089 107340 107966 107967 108345 108417 108418 109034 109069 B500355 110561 335386 110837 11092 111488 11885 12519 113271 114178 11472 114525 11549 115490 116431 117014	HEX PLAIN NUT, 1-4-20 SST SCREW, TRUSS HEAD 10-32 X 3/8" SST SCREW, TRUSS HEAD 10-32 X 1/2" SST HEX PLAIN NUT, 5/6-18 SST LOCKNUT, 1/2" NPT SST NIPPLE, 1" NPT X CLOSE SST BOLT, HEX HEAD, 1/4-20 X 1" NPT SST BOLT HEX HEAD, 5/16-18 X 1" SST WASHER, FLAT 5/16" TEE, 1" NPT SST WASHER, FLAT 1/4" X 1" X .O6" SST WASHER, FLAT 1/4" SST WASHER, LOCK 5/16" SPLIT SST HEX PLAIN JAM NUT, 1/2-13 CLAMP HOSE, M28, GEAR-TYPE HEX GRIP NUT, 10-32 SST W/NYLON HEX GRIP NUT, 10-32 SST W/NYLON HEX GRIP NUT, 1/4-20 SST W/NYLON GASKET, HEATER, STANDPIPE LOCKNUT, 1/2" NPT PLASTIC PLUG, 1/2" PLASTIC GASKET (1/2" PLUG) PROBE, THERMOSTAT W/CAPILLARY CORD GRIP, 1/2" NPT THERMOSTAT, HLIMIT W/CAPILLARY STRAINER, DRAIN 6" ELBOW, 1/2" CONDUIT, SEALTITE FLOAT SWITCH JUMPER STRIP, HEATER FISH PAPER, INSULATION PLUG, SNAP 0.875D FLAT ARC SUPPRESSOR HEATER, 5.2KW 208/3/60 90° TANK HOSE, OVERFLOW, 90° PUMP/MOTOR 220V/60/1PH CLAMP, HOSE M36, SST W/CS SCREW HOSE, DISCHARGE, REINFORCED HOSE, PUMP SUCTION O-RING, SILICONE WASHER, FLAT NIPPLE, TOE 1" NPT X 2" LG. VALVE, BALL 1" NPT BRASS 110-230V N.C.	9 2 2 4 3 1 4 4 8 1 5 4 6 1 2 2 2 2 3 1 1 1 1 4 1 2 2 2 2 3 1 1 1 1 4 1 2 2 2 2 3 1 1 1 1 1 2 1 2 2 2 3 1 1 1 1
			1 1 1
44 45	305164	SCREEN, SCRAP	2 1
45 46	322076 332539	BRACKET, THERMOSTAT, DUAL/QUAD MOUNT MOUNTING SUPPORT, PUMP	1
47	332542		1
48 49	332543 332544	COVER, JUNCTION BOX SUPPORT, FILLER SCREEN	1 1
50	332021	SCREEN, SUCTION	1



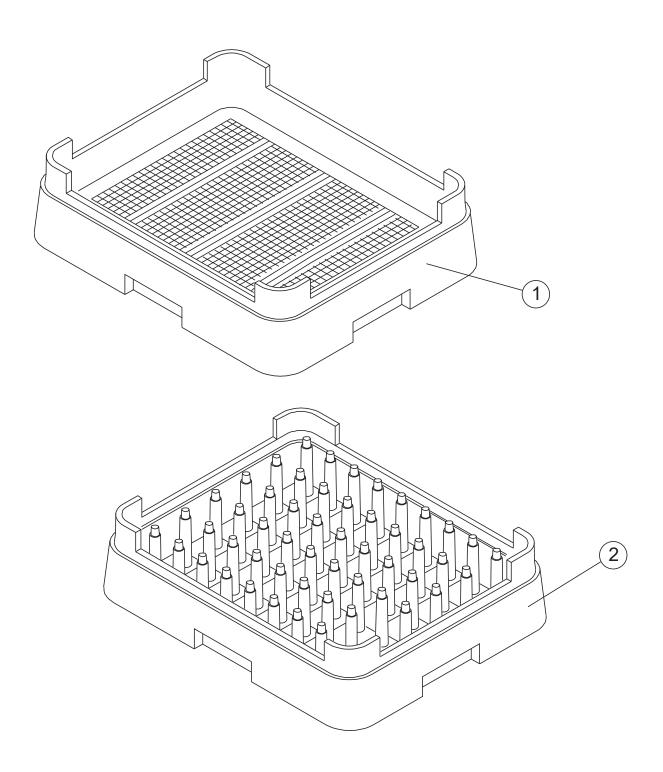
## Hood and Door Assembly

ltem No.	Part No.	Description	Qty.
1	100002	BOLT, HEX HD., 1/4-20 X 1-3/8" SST	2
2	100738	BOLT, HEX HD., 1/4-20 X 1" SST	4
3	106014	NUT, HEX ACORN PLAIN, 1/4-20 SST	4
4	106026	WASHER, FLAT 1/4" SST	21
5	107962	HANDLE, GRIP	2
6	107967	HEX, GRIP NUT, 1/4-20 SST W/NYLON	12
7	108954	HEX, GRIP NUT, 6-32 SST W/NYLON	2
8	113745	PLUG, HOLE FDA, SILICON	4
9	113937	MAGNET, ALEPH	1
10	114154	SCREW, TRUSS HD., 1/4-20 X 1/2" SST	6
11	0310781-1	PIVOT, DOOR HANDLE	4
12	0310792-1	PLATE, DOOR PIVOT	2
13	0310843-2	WEAR STRIP, DOOR 24" LG.	6
14	339414	HOOD, WELDMENT	1
15	333546	DOOR, LH	1
16	332547	DOOR, RH	1
17	332557	DOOR, FRONT	1
18	332867	BRACKET, CONNECTION DOOR	2
19	332881	LIFT BAR, DOOR	2
20	0510459	SPRING, DOOR	2
21	0510779-1	HANDLE, DOOR	1
22	0510787-1	SPACER, LIFT BAR, DOOR	1
23	0510788-1	TUBE, SPACER	2
24	0510788-2	PIVOT,TUBE, DOOR	4
25	0510791-1	GASKET, DOOR PIVOT	2
26	104618	WASHER, FLAT 3/8" SST	6
27	332559	DOOR, RH	1
28	332540	PANEL, FRONT	1
29	104923	SCREW, 1/4-20 X 3/8" RD., HD., SST	6
30	332546	DOOR, LH	1



ltem No.	Part No.	Description	Qty.
1	100003	HEX PLAIN NUT, 1/4-20 SST	6
2	100073	SCREW, TRUSS HD., 1/4-20 X 1/2" SST	6
3	100754	SCREW, FLAT HD., 10-32 X 1/2" SST	2
4	104985	Hex plain nut, 10-32 SST	2
5	106482	WASHER, LOCK 1/4" SPLIT SST	6
6	106486	WASHER, LOCK #10 SPLIT, SST	2
7	332021	TRACK, REAR	1
8	332022	TRACK, FRONT	1
9	332023	TRACK, RAIL ADJUST	1
10	332024	TRACK, CROSS BAFFLE	2
11	332025	TUBE, CROSS TRACK	1

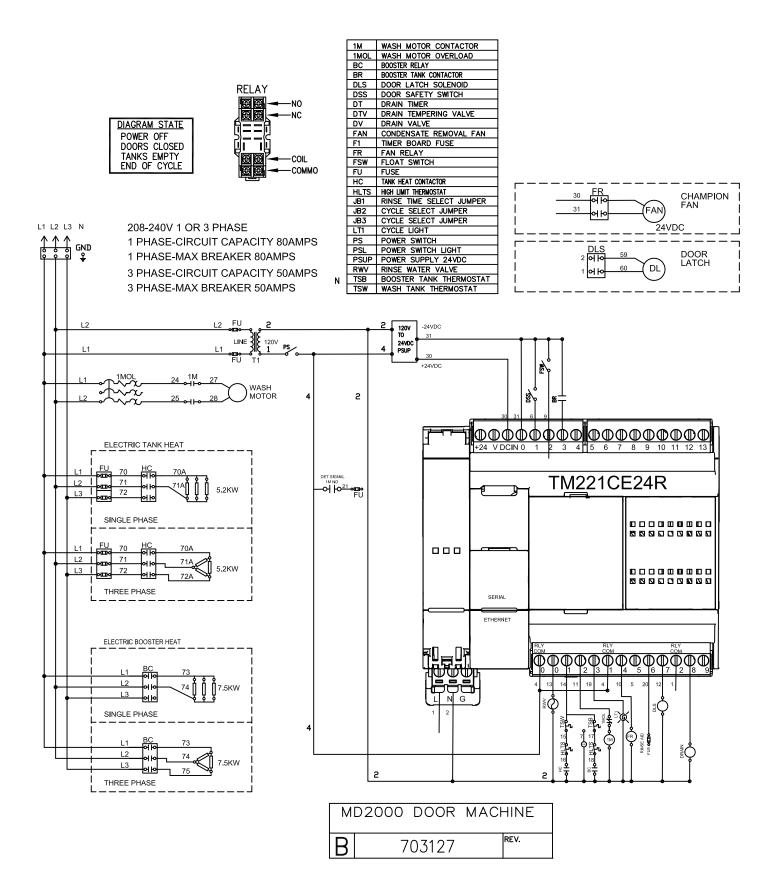
Tracks



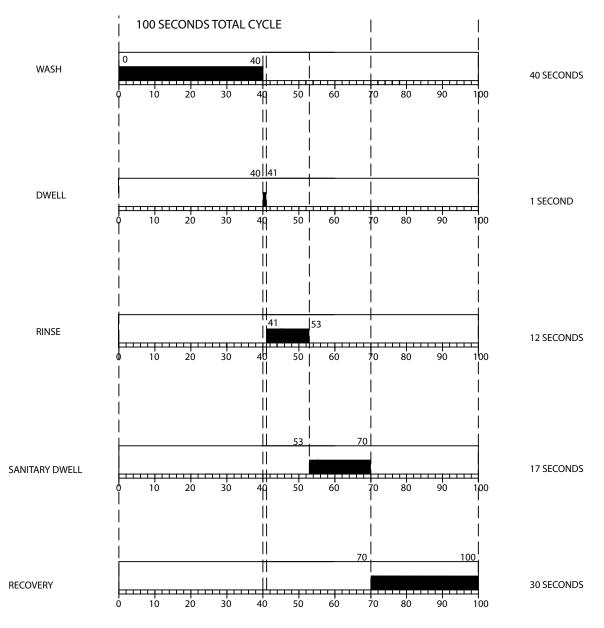
Dish Racks

ltem No.	Part No.	Description	Qty.
1	101273	DISH RACK, FLAT-BOTTOM	A/R
2	101285	DISH RACK, PEG	A/R

#### **Electrical Schematic**



# TIME CYCLE - MD2000-VHR



## CYCLE STRUCTURE:

100 SECONDS CYCLE CONSISTING OF:

40 SECONDS WASH, 1 SECOND DWELL, 12 SECONDS RINSE, 17 SECONDS SANITARY DWELL. 30 SECONDS RECOVERY Blank Page

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