Enodis

TECHNICAL MANUAL

INSTALLATION MANUAL FOR EXPORT UNITS SERVICE MANUAL FOR DOMESTIC UNITS

ELECTRICALLY HEATED MODELS:

TEMPSTAR HH

TEMPSTAR HH NB

STEAM HEATED MODELS:

TEMPSTAR HH S



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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.



CALL 1-888-800-5672 TO REGISTER THIS PRODUCT! FAILURE TO DO SO WILL VOID THE WARRANTY!

LLAME AL 1-888-800-5672 PARA REGISTRAR ESTE PRODUCTO!
AL NO HACERLO LA GARANTIA SERA ANULADA!

S.V.P. APPELER 1-888-800-5672 POUR ENREGISTRER CE PRODUIT, LA GARANTIE SERA ANNULEE POUR TOUT PRODUIT NON- ENREGISTREE

| REVISION | REVISION DATE | MADE BY | APPLICABLE ECN | DETAILS |
|----------|------------------|------------|--|--|
| F | 06-01-04 | MAW | N/A | Change to new leveut |
| G | 05-20-05 | MAW | N/A | Change to new layout. Corrected amperage ratings, changed to thermostat bracket 05700-011-81-64, changed thermostat 05930-121-71-29 to thermostat kit 06401-140-00-32, updated drawing for false panel installation, and added SDI override instructions. |
| Н | 01-17-06 | MAW | 7609 | Added universal timer, parts & schematics. |
| I | 07-06-06 | MAW | 7713, 7571 7493, 7553 7411, 7422 7231 | Updated specification & dimension pages. Updated drain quench assembly. Replaced door switch 05930-003-02-20 with 05930-003-05-84. Added false panel kit numbers, door component kits. Replace ball stop components. Replace thermostat 05930-121-71-29 with 05930-510-03-79. Added the wash & rinse thermometer decals. |
| J | 09-14-07 | MAW | | Obsoleting I/O manual, added warranty and repair centers info. Listed minimum cycle times. Added Top Mount Control Box: dimensions, hood weldment, control box, and schematics. Corrected the rinse tank cover number, updated the cantilever support bracket and reed switch numbers. |
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TEMPSTAR HH S

| TEMPSTAR HH = Electrically heated, hot water sanitizing, with booster heater, door-type dishmachine with a higher high | ood |
|--|------|
| TEMPSTAR HH NB = Electrically heated, hot water sanitizing, no rinse booster, door-type dishmachine with a higher | hood |
| TEMPSTAR HH S = Steam heated, hot water sanitizing, door-type dishmachine with a higher hood | |

| /lodel: | |
|--------------------|--|
| Serial No.: | |
| nstallation Date: | |
| | |
| Service Rep. Name: | |
| Phone No.: | |

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OPERATING CAPACITIES

| PERFORMANCE/CAPABILITIES | ELECTRICAL REQUIREMENTS | | | |
|---|------------------------------|--|---|--|
| OPERATING CAPACITY: | WASH MOTOR HP | 2.0 | | |
| SELECTION (A) RACKS PER HOUR 53 DISHES PER HOUR 1325 GLASSES PER HOUR 1325 | | NOTE: Always refer to the machine data plate for specific electrical and water requirements. The material provided on this page is for reference only and may be subject to change without notice. | | |
| SELECTION (B) | 00 | WATER REQUIREMENTS | | |
| RACKS PER HOUR DISHES PER HOUR GLASSES PER HOUR | 29 725 725 | TEMPSTAR HH: | | |
| SELECTION (C) RACKS PER HOUR | 20 | WASH TEMPERATURE (MINIMUM)(°F) WASH TEMPERATURE (MINIMUM)(°C) RINSE TEMPERATURE (MINIMUM)(°F) RINSE TEMPERATURE (MINIMUM)(°C) | 150 66 180 83 | |
| DISHES PER HOUR GLASSES PER HOUR | 500 500 | INLET WATER TEMPERATURE: 12KW RINSE HEATER (°F) | 140 | |
| SELECTION (D) RACKS PER HOUR DISHES PER HOUR GLASSES PER HOUR | 12 300 300 | 12KW RINSE HEATER (°C) 14KW RINSE HEATER (°F) 14KW RINSE HEATER (°C) FLOW PRESSURE (PSI) WATER LINE SIZE (NPT) DRAIN LINE SIZE (NPT) | 60 110 44 20±5 3/4" 1 1/2" | |
| OPERATING CYCLE (SECONDS): | | TEMPSTAR HH NB/TEMPSTAR HH S: | | |
| MINIMUM (OTHER CYCLE TIMES ARE AVAILABL WASH TIME RINSE TIME TOTAL CYCLE TIME | .E) 45 15 60 | WASH TEMPERATURE (MINIMUM)(°F) WASH TEMPERATURE (MINIMUM)(°C) RINSE TEMPERATURE (MINIMUM)(°F) | 150 66 180 | |
| TANK CAPACITY RINSE TANK (GALLONS) RINSE TANK (LITERS) WASH TANK (GALLONS) WASH TANK (LITERS) | 3.0 11.4 8.0 30.3 | RINSE TEMPERATURE (MINIMUM)(°C) INLET WATER TEMPERATURE (°F) INLET WATER TEMPERATURE (°C) FLOW PRESSURE (PSI) WATER LINE SIZE (NPT) DRAIN LINE SIZE (NPT) | 83 180 83 20±5 3/4" 1 1/2" | |
| | | STEAM REQUIREMENTS | | |
| | | COIL SIZE STEAM FLOW PRESSURE (P.S.I.) CONSUMPTION @ 15 P.S.I. (LBS/HR) | 3/4" 10-20 45 | |

ELECTRICAL REQUIREMENTS

NOTE: Typical Electrical Circuit is based upon (1) 125% of the full amperage load of the machine and (2) typical fixed-trip circuit breaker sizes as listed in the NEC 2002 Edition. Local codes may require more stringent protection than what is displayed here. Always verify with your electrical service contractor that your circuit protection is adequate and meets all applicable national and local codes. These numbers are provided in this manual simply for reference and may change without notice at any given time.

TEMPSTAR HH:

| | | | RINSE | | TYPICAL |
|--------------|-----------|-----------|----------------|-------------|----------------|
| | | | HEATER | TOTAL E | ELECTRICAL |
| <u>VOLTS</u> | <u>PH</u> | <u>HZ</u> | <u>RATINGS</u> | <u>AMPS</u> | <u>CIRCUIT</u> |
| 415 | 3 | 60 | 12KW | 28 A | 35 AMP |
| 415 | 3 | 60 | 14KW | 30 A | 40 AMP |
| | | | | | |
| 208 | 1 | 60 | 12KW@240V | 75 A | 100 AMP |
| 208 | 1 | 60 | 14KW@240V | 82 A | 110 AMP |
| 230 | 1 | 60 | 12KW@240V | 81 A | 110 AMP |
| 230 | 1 | 60 | 14KW@240V | 90 A | 125 AMP |
| | | | | | |
| 208 | 3 | 60 | 12KW@240V | 48 A | 60 AMP |
| 208 | 3 | 60 | 14KW@240V | 52 A | 70 AMP |
| 230 | 3 | 60 | 12KW@240V | 52 A | 70 AMP |
| 230 | 3 | 60 | 14KW@240V | 57 A | 80 AMP |
| 460 | 3 | 60 | 12KW@480V | 24 A | 30 AMP |
| 460 | 3 | 60 | 14KW@480V | 26 A | 35 AMP |

TEMPSTAR HH NB:

| <u>VOLTS</u> | <u>PH</u> | <u>HZ</u> | RINSE HEATER <u>RATINGS</u> | TOTAL E | TYPICAL ELECTRICAL <u>CIRCUIT</u> |
|--------------|-----------|-----------|-----------------------------------|---------|---|
| 208 | 1 | 60 | N/A | 31 A | 35 AMP |
| 230 | 1 | 60 | N/A | 33 A | 35 AMP |
| 208 | 3 | 60 | N/A | 23 A | 25 AMP |
| 230 | 3 | 60 | N/A | 24 A | 35 AMP |
| 460 | 3 | 60 | N/A | 10 A | 15 AMP |

TEMPSTAR HH S:

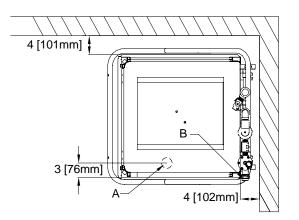
| | | | RINSE HEATER | TOTAL | TYPICAL ELECTRICAL |
|--------------|-----------|-----------|-----------------|-------------|--------------------|
| VOLTS | <u>PH</u> | <u>HZ</u> | <u>RATINGS</u> | <u>AMPS</u> | <u>CIRCUIT</u> |
| 208 | 1 | 60 | N/A | 12 A | 15 AMP |
| 230 | 1 | 60 | N/A | 12 A | 15 AMP |
| 000 | 0 | 00 | N1/A | 40.4 | 45 AMD |
| 208 | 3 | 60 | N/A | 12 A | 15 AMP |
| 230 | 3 | 60 | N/A | 12 A | 15 AMP |

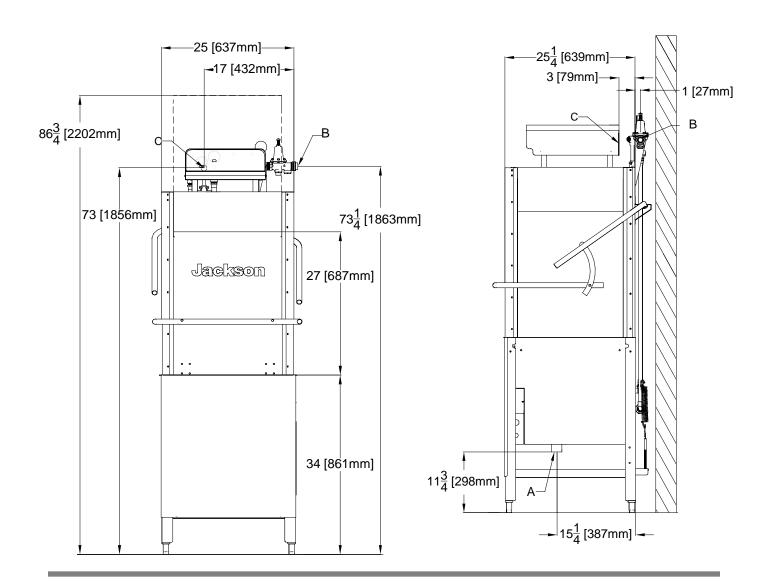
TEMPSTAR HH DIMENSIONS (TOP MOUNT CONTROL BOX)

LEGEND

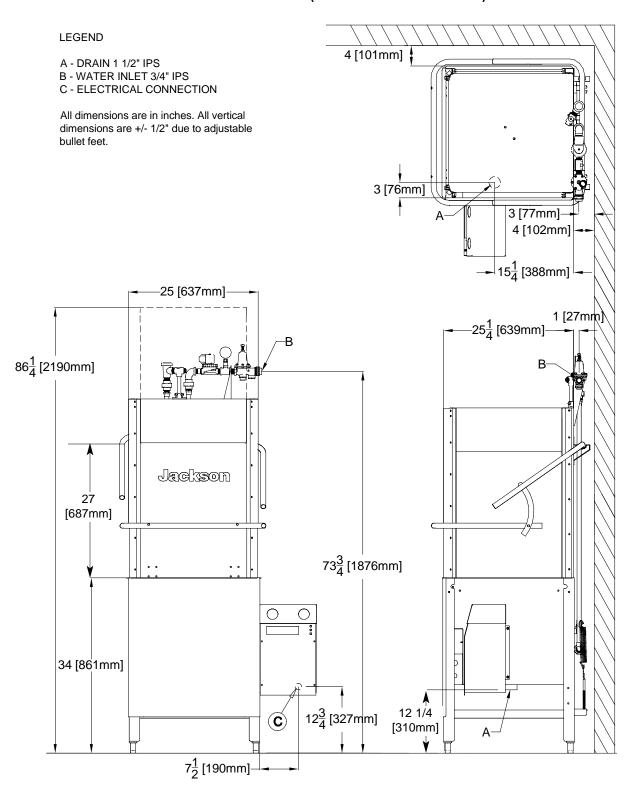
- A DRAIN 1 1/2" IPS
- B WATER INLET 3/4" IPS
- **C ELECTRICAL CONNECTION**

All vertical dimensions are +/- 1/2" due to adjustable bullet feet.

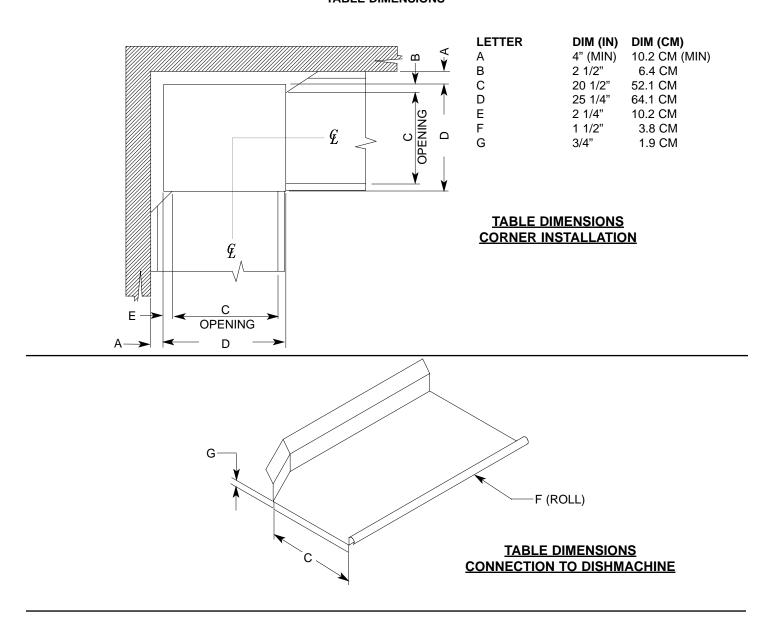


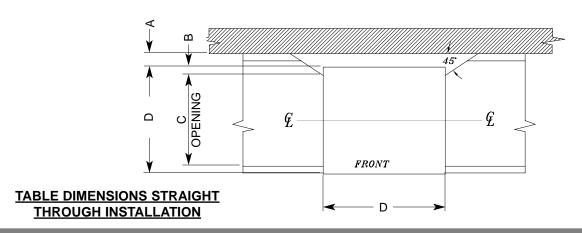


TEMPSTAR HH DIMENSIONS (SIDE MOUNT CONTROL BOX)



SECTION 1: SPECIFICATION INFORMATION TABLE DIMENSIONS





SECTION 2: INSTALLATION & OPERATION INSTRUCTIONS

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

INSTALLATION INSTRUCTIONS

Jackson MSC Inc. provides technical support for all of the dishmachines detailed in this manual. We strongly recommend that you refer to this manual before making a call to our technical support staff. Please have this manual with you when you call so that our staff can refer you, if necessary, to the proper page. Technical support is available from 8:00 a.m. to 5:00 p.m. (EST), Monday through Friday. Technical support is not available on holidays. Contact technical support toll free at 1-888-800-5672. Please remember that technical support is available for service personnel only.

VISUAL INSPECTION: Before installing the unit, check the container and machine for damage. A damaged container is an indicator that there may be some damage to the machine. If there is damage to both the container and machine, do not throw away the container. The dishmachine has been inspected and packed at the factory and is expected to arrive to you in new, undamaged condition. However, rough handling by carriers or others may result in there being damage to the unit while in transit. If such a situation occurs, do not return the unit to Jackson; instead, contact the carrier and ask them to send a representative to the site to inspect the damage to the unit and to complete an inspection report. You must contact the carrier within 48 hours of receiving the machine. Also, contact the dealer through which you purchased the unit.

UNPACKING THE DISHMACHINE: Once the machine has been removed from the container, ensure that there are no missing parts from the machine. This may not be obvious at first. If it is discovered that an item is missing, contact Jackson immediately to have the missing item shipped to you.

LEVEL THE DISHMACHINE: The dishmachine is designed to operate while being level. This is important to prevent any damage to the machine during operation and to ensure the best results when washing ware. The unit comes with adjustable bullet feet, which can be turned using a pair of channel locks or by hand if the unit can be raised safely. Ensure that the unit is level from side to side and from front to back before making any connections.

PLUMBING THE DISHMACHINE: All plumbing connections must comply with all applicable local, state, and national plumbing codes. The plumber is responsible for ensuring that the incoming water line is thoroughly flushed prior to connecting it to any component of the dishmachine. It is necessary to remove all foreign debris from the water line that may potentially get trapped in the valves or cause an obstruction. Any valves that are fouled as a result of foreign matter left in the water line, and any expenses resulting from this fouling, are not the responsibility of the manufacturer.

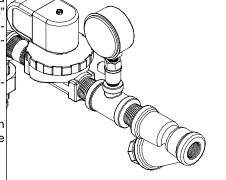
CONNECTING THE DRAIN LINE: The drain is a gravity discharge drain. All piping from the 1 1/2" FNPT connection on the wash tank must be pitched (1/4" per foot) to the floor or sink drain. All piping from the machine to the drain must be a minimum 1 1/2" I.P.S. and shall not be reduced. There must also be an air gap between the machine drain line and the floor sink or drain. If a grease trap is required by code, it should have a flow capacity of 5 gallons per minute.

WATER SUPPLY CONNECTION: Ensure that you have read the section entitled "PLUMBING THE DISHMACHINE" before proceeding. Install the water supply line (3/4" pipe size minimum) to the dishmachine line strainer using copper pipe. It is recommended that a water shut-off valve be installed in the water line between the main supply and the machine to allow access for service.

The water supply line is to be capable of 20 ± 5 PSI "flow" pressure at the recommended temperature indicated on the data plate.

Do not confuse static pressure with flow pressure. Static pressure is the line pressure in a "no flow" condition (all valves and services are closed). Flow pressure is the pressure in the fill line when the fill valve is opened during the cycle.

It is also recommended that a shock absorber (not supplied) be installed in the incoming water line. This prevents line hammer (hydraulic shock), induced by the solenoid valve as it operates, from causing damage to the equipment.



Frame with Adjustable Foot

Incoming Plumbing Y-strainer Connection

PLUMBING CHECK: Slowly turn on the water supply to the machine after the incoming fill line and the drain line have been installed. Check for any leaks and repair as required. All leaks must be repaired prior to placing the machine in operation.

STEAM LINE CONNECTION: The steam machines come with lines by which the source steam needs to be connected. Connect all steam lines to the machine as all applicable codes provide. See machine data plate for information concerning steam flow pressure.

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS =

ELECTRICAL INSTRUCTIONS

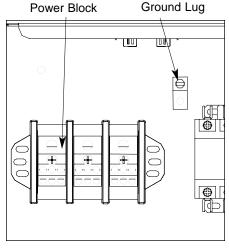
ELECTRICAL POWER CONNECTION: Electrical and grounding connections must comply with the applicable portions of the National Electrical Code ANSI/NFPA 70 (latest edition) and/or other electrical codes.

Disconnect electrical power supply and place a tag at the disconnect switch to indicate that you are working on the circuit.

The dishmachine data plate is located on the right side and to the front of the machine. Refer to the data plate for machine operating requirements, machine voltage, total amperage load and serial number.

To install the incoming power lines, open the control box. This will require taking a phillips head screwdriver and removing the four (4) screws on the front cover of the control box. Install 3/4" conduit into the pre-punched holes in the back of the control box. Route power wires and connect to power block and grounding lug. Install the service wires (L1, L2, & L3 (three phase only)) to the appropriate terminals as they are marked on the terminal block. Install the grounding wire into the lug provided. Tighten the connections. It is recommended that "DE-OX" or another similar anti-oxidation agent be used on all power connections.

VOLTAGE CHECK: Ensure that the power switch is in the OFF position and apply power to the dishmachine. Check the incoming power at the terminal block and ensure it corresponds to the voltage listed on the data plate. If not, contact a qualified service agency to examine the problem. Do not run the dishmachine if the voltage is too high or too low. Shut off the service breaker and mark it as being for the dishmachine. Advise all proper personnel of any problems and of the location of the service breaker. Replace the control box cover and tighten down the screws.



Incoming Power Connection

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

DETERGENT CONTROL

Detergent usage and water hardness are two factors that contribute greatly to how efficiently your dishmachine will operate. Using detergent in the proper amount can become, in time, a source of substantial savings. A qualified water treatment specialist can tell you what is needed for maximum efficiency from your detergent, but you should still know some basics so you'll understand what they are talking about.

First, you must understand that hard water greatly effects the performance of the dishmachine. Water hardness is the amount of dissolved calcium and magnesium in the water supply. The more dissolved solids in the water, the greater the water hardness. Hard water works against detergent, thereby causing the amount of detergent required for washing to increase. As you use more detergent, your costs for operating the dishmachine will increase and the results will decrease. The solids in hard water also may build-up as a scale on wash and rinse heaters, decreasing their ability to heat water. Water temperature is important in removing soil and sanitizing dishes. If the water cannot get hot enough, your results may not be satisfactory. This is why Jackson recommends that if you have installed the machine in an area with hard water, that you also install some type of water treatment equipment to help remove the dissolved solids from the water before it gets to the dishmachine.

Second, hard water may have you adding drying agents to your operating cycle to prevent spotting, when the real problem is deposited solids on your ware. As the water evaporates off of the ware, the solids will be left behind to form the spotting and no amount of drying agent will prevent this. Again, using treated water will undoubtedly reduce the occurrences of this problem.

Third, treated water may not be suitable for use in other areas of your operation. For instance, coffee made with soft water may have an acid or bitter flavor. It may only be feasible to install a small treatment unit for the water going into the dishmachine itself. Discuss this option with your qualified water treatment specialist.

Even after the water hardness problems have been solved, there still must be proper training of dishmachine operators in how much detergent is to be used per cycle. Talk with your water treatment specialist and detergent vendor and come up with a complete training program for operators. Using too much detergent has as detrimental effects as using too little. The proper amount of detergent must be used for job. It is important to remember that certain menu items may require extra detergent by their nature and personnel need to be made aware of this. Experience in using the dishmachine under a variety of conditions, along with good training in the operation of the machine, can go a long way in ensuring your dishmachine operates as efficiently as possible.

Certain dishmachine models require that chemicals be provided for proper operation and sanitization. Some models even require the installation of third-party chemical feeders to introduce those chemicals to the machine. Jackson does not recommend or endorse any brand name of chemicals or chemical dispensing equipment. Contact your local chemical distributor for questions concerning these subjects.

Some dishmachines come equipped with integral solid detergent dispensers. These dispensers are designed to accommodate detergents in a certain sized container. If you have such a unit, remember to explain this to your chemical distributor upon first contacting them.

As explained before, water temperature is an important factor in ensuring that your dishmachine functions properly. The data plate located on each unit details what the minimum temperatures must be for either the incoming water supply, the wash tank and the rinse tank, depending on what model of dishmachine you have installed. These temperatures may also be followed by temperatures that Jackson recommends to ensure the highest performance from you dishmachine. However, if the minimum requirements are not met, the chances are your dishes will not be clean or sanitized. Remember, a dish can look clean, but it may not be sanitized. Instruct your dishmachine operators to observe the required temperatures and to report when they fall below the minimum allowed. A loss of temperature can indicate a much larger problem such as a failed heater or it could also indicate that the hot water heater for your operation is not up to capacity and a larger one may need to be installed.

There are several factors to consider when installing your dishmachine to ensure that you get the best possible results from it and that it operates at peak efficiency for many years. Discuss your concerns with your local chemical distributor and water treatment specialist before there is a problem.

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

OPERATION INSTRUCTIONS

PREPARATION: Before proceeding with the start-up of the unit, verify the following:

- 1. The pan strainer and pump suction strainer are in place and are clean.
- 2. The overflow tube and o-ring are installed.
- 3. That the wash and rinse arms are screwed securely into place and that their endcaps are tight. The wash and rinse arms should rotate freely.

POWER UP: To energize the unit, turn on the power at the service breaker. The voltage should have been previously verified as being correct. If not, the voltage will have to be verified.

FILLING THE WASH TUB: For the initial fill, ensure that the cycle selection switch is in the "AUTO" (automatic) position, and place the power switch in the "ON" position. The unit will fill automatically and run through a rinse cycle. Open the doors and verify that the water level is correct. Hereafter, the water level is controlled by the overflow tube. Verify that the drain stopper is preventing the wash tub water from draining excessively. There may be some slight leakage from the drain hole. Verify that there are no other leaks on the unit before proceeding any further. The wash tub must be completely filled before operating the wash pump to prevent damage to the component. Once the wash tub is filled, the unit is ready for operation.

WARE PREPARATION: Proper preparation of ware will help ensure good results and less re-washes. If not done properly, ware may not come out clean and the efficiency of the dishmachine will be reduced. It is important to remember that a dishmachine is not a garbage disposal and that simply throwing unscraped dishes into the machine simply defeats the purpose altogether of washing the ware. Scraps should be removed from ware prior to being loaded into a rack.

Pre-rinsing and pre-soaking are required, especially for silverware and casserole dishes. Place cups and glasses upside down in racks so that they do not hold water during the cycle. The dishmachine is meant not only to clean, but to sanitize as well, to destroy all of the bacteria that could be harmful to human beings. In order to do this, ware must be properly prepared prior to being placed in the machine.

DAILY MACHINE PREPARATION: Refer to the section entitled "PREPARATION" at the top of this page and follow the instructions there. Afterwards, check that all of the chemical levels are correct and/or that there is plenty of detergent available for the expected workload.

WARM-UP CYCLES: For a typical daily start-up, it is recommended to run the machine through 3 cycles to ensure that all of the cold water is out of the system and to verify that the unit is operating correctly. To cycle the machine, ensure that the power is on and that the tub has filled to the correct level. Lift the doors and the cycle light will illuminate. When the light goes out, close the doors, the unit will start, run through the cycle, and shut off automatically. Repeat this two more times. The unit should now be ready to proceed with the washing of ware.

WASHING A RACK OF WARE: To wash a rack, open the doors completely (being careful for hot water that may drip from the doors) and slide the rack into the unit. Close the doors and the unit will start automatically. Once the cycle is completed, the cycle light will turn off, open the door (again watching for the dripping hot water) and remove the rack of clean ware. Replace with a rack of soiled ware and close the doors. The process will then repeat itself.

OPERATIONAL INSPECTION: Based upon usage, the pan strainer may become clogged with soil and debris as the workday progresses. Operators should regularly inspect the pan strainer to ensure it has not become clogged. If the strainer does, it will reduce the washing capability of the machine. Instruct operators to clean out the pan strainer at regular intervals or as required by work load.

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS =

OPERATION INSTRUCTIONS (CONTINUED)

SHUTDOWN AND CLEANING: Secure steam flow to the machine in accordance with applicable codes and procedures. Steam flow must be secured prior to cleaning the inside of the machine. At the end of the workday, close the doors. When the unit completes the cycle, turn the power switch to the OFF position and open the doors. Remove and clean the pan strainer. Remove the drain stopper from the tub and allow the tub to drain (NOTE: The wash tank water will be hot so caution is advised). Once the wash tub is drained, remove the pump suction strainer. Remove soil and debris from the strainer and set to the side. Unscrew the wash and rinse arms from their manifolds. Remove the endcaps and flush the arms with water. Use a brush to clean out the inside of the arms. If the nozzles appear to be clogged, use a toothpick to remove the obstruction. Wipe the inside of the unit, removing all soil and scraps. Reassemble the wash and rinse arms and replace them in the unit. The arms only need to be hand tight, do not use tools to tighten them down. Reinstall the drain stopper and strainers and close the doors.

WATER CONSUMPTION ISSUES AND EFFICIENCY: The models covered in this manual provide you, the customer, with the ability to control the hourly rack capacity of the machine. Extending the wash cycle to wash severely soiled ware, such as mixing bowls, does not increase the machine's water consumption. However, selecting a longer time cycle does lower the amount of dishes the machine will be able to wash per hour. It is important for operators to select the correct wash cycle depending on the amount of washing required. Not every rack of dishes requires the machine to be set on the longest wash cycle!

Using good prescrapping procedures and observing the results of individual racks of ware, operators will soon gain the experience and knowledge required to ensure that the dishmachine operates at peak efficiency for your needs. Water hardness and detergent usage will also effect the results of the dishmachine.

SECTION 3: PREVENTATIVE MAINTENANCE

SECTION 3: PREVENTATIVE MAINTENANCE

PREVENTATIVE MAINTENANCE

The dishmachines covered in this manual are designed to operate with a minimum of interaction with the operator. However, this does not mean that some items will not wear out in time. Jackson highly recommends that any maintenance and repairs not specifically discussed in this manual should be performed by QUALIFIED SERVICE PERSONNEL ONLY. Performing maintenance on your dishmachine may void your warranty if it is still in effect, so if you have a question or concern, do not hesitate to contact one of the QUALIFIED SERVICE AGENCIES listed in the back of this manual.

There are many things that operators can do to prevent catastrophic damage to the dishmachine. One of the major causes of component failure has to do with prescrapping procedures. A dishmachine is not a garbage disposal; any large pieces of material that are put into the machine shall remain in the machine until they are either broken up (after spreading out on your ware!) or physically removed. Strainers are installed to help catch debris, but they do no good if they are clogged. Have operators regularly inspect the pan strainers to ensure (1) that they are free of soil and debris and (2) they are laying flat in the tub.

When cleaning out strainers, do NOT beat them on waste cans. The strainers are made of metal and can be forgiving; but once severe damage is done, it is next to impossible for the strainer to work in the way it was designed to. Wipe out strainers with a rag and rinse under a faucet if necessary. For stubborn debris, a toothpick should be able to dislodge any obstructions from the perforations. Always ensure that strainers are placed back in the machine before operation and that they lay flat in the tub.

You may wish to learn more about how your water hardness will effect the performance of your machine. Hard water makes dishmachines work harder and decreases efficiency.

Again, it is important to remind operators that trying to perform corrective maintenance on the dishmachine could lead to larger problems or even cause harm to the operator. If a problem is discovered; secure the dishmachine using proper shut down procedures as listed in this manual and contact a QUALIFIED SERVICE AGENCY.

Some problems, however, may having nothing to do with the machine itself and no amount of preventative maintenance is going to help. A common problem has to do with temperatures being too low. Verify that the water temperatures coming to your dishmachine match the requirements listed on the machine data plate. There can be a variety of reasons why your water temperature could be too low and you should discuss it with a QUALIFIED SERVICE AGENCY to determine what can be done.

By following the operating and cleaning instructions in this manual, you should get the most efficient results from your machine. As a reminder, here are some steps to take to ensure that you are using the dishmachine the way it was designed to work:

- 1. Ensure that the water temperatures match those listed on the machine data plate.
- 2. Ensure that all strainers are in place before operating the machine.
- 3. Ensure that all wash and/or rinse arms are secure in the machine before operating.
- 4. Ensure that drains are closed/sealed before operating.
- 5. Remove as much soil from dishes by hand as possible before loading into racks.
- 6. Do not overfill racks.
- 7. Ensure that glasses are placed upside down in the rack.
- 8. Ensure that all chemicals being injected to machine have been verified as being at the correct concentrations.
- 9. Clean out the machine at the end of every workday as per the instructions in the manual.
- 10. Always contact a QUALIFIED SERVICE AGENCY whenever a serious problem arises.
- 11. Follow all safety procedures, whether listed in this manual or put forth by local, state or national codes/regulations.

SECTION 4: TROUBLESHOOTING

SECTION 4: TROUBLESHOOTING

COMMON PROBLEMS



WARNING: Inspection, testing and repair of electrical equipment should only be performed by a qualified service technician. Many of the tests require that the unit have power to it and live electrical components be exposed. USE EXTREME CAUTION WHEN TESTING THE MACHINE.

Problem: Dishmachine will not fill after the door is close. Power "ON" light is illuminated.

- 1. Faulty rinse solenoid valve. Repair or replace valve as required.
- 2. Faulty door switch. Verify the wiring of the switch; if correct, replace the switch.
- 3. Fouled/faulty high level probe. Clean probe if fouled. If clean, and still not working, replace.

Problem: Dishmachine will not fill after the door is closed. Power "ON" light is not illuminated.

- 1. Service breaker tripped. Reset. If the breaker trips again, contact an electrician to verify the amp draw of the machine.
- 2. Machine not connected to power source. Verify that the machine has been properly connected to the power source.
- 3. Faulty power source. Verify the wiring of the switch: if correct, replace switch.

Problem: Dishmachine will not run after the door is closed. Power "ON" light is illuminated and the unit is filling.

- 1. Timer motor is faulty. Verify that the timer is rotating. If not, check to see that the motor is receiving power. If so, replace the motor and/or timer assembly.
- 2. Wash motor faulty/damaged. Verify that the wash motor is getting power. If so, replace the motor.
- 3. Wash motor contactor faulty. Check for continuity; if contacts are open, replace the contactor.

Problem: Dishmachine runs continuously in the wash cycle.

- 1. Machine is in delime mode. Change Operation Mode from DELIME to NORMAL position.
- 2. Wash cycle delay timer is faulty. During the wash cycle, the cam timer will move for the first 30 seconds of the wash cycle. The cycle delay timer will then cause the cam timer to stop, in order to increase the length of the wash cycle. The red light on the delay timer is in control of the cam timer. If the red light is not turning on (only during cycles B, C or D), replace the cycle timer.
- 3. Wash cycle delay timer settings not correctly adjusted. If the wash cycle delay timer and rotating cam timer are working correctly, the time cycles on the delay timer may be incorrectly adjusted. Adjust the delay potentiometer corresponding to the B, C or D cycle. Rerun the appropriate cycle and see if the adjustment has made any change in the length of the cycle. If not, replace the cycle delay timer.
- 4. Cam timer is faulty. Confirm that the wash cycle delay timer is functioning correctly (see above). Confirm that the timer motor is receiving power. If it is, replace the motor and/or timer assembly. Make sure there are no obstructions which limit the rotation of the cam timer.

Problem: Wash or rinse heater does not work.

- 1. Faulty heater element. Check element for continuity; if open, replace the heater.
- 2. Faulty heater contactor. Replace the contactor.
- 3. Misadjusted/faulty thermostat(s). Verify operation and setting of thermostats, replace if necessary.

Problem: Dishmachine fill slowly and/or the rinse is weak.

- 1. Clogged or obstructed rinse arms. Remove and clean the rinse arms.
- 2. Low incoming water pressure. Adjust the water pressure regulator to ensure that there is 20±5 PSI flow.
- 3. Y-strainer is clogged. Clean out the Y-strainer.

Problem: Rinse water not reaching required temperature.

- 1. Faulty rinse heater. Check element for continuity; if open, replace heater.
- 2. Misadjusted/faulty thermostat(s). Verify operation and setting of thermostats, replace if necessary.
- 3. Rinse thermometer is defective. Replace thermometer.

SECTION 4: TROUBLESHOOTING

COMMON PROBLEMS

Problem: Wash water is not reaching required temperature.

- 1. Faulty wash heater. Check element for continuity; if open, relace the heater.
- 2. Misadjusted/faulty thermostat(s). Verify operation and setting of thermostats, replace if necessary.
- 3. Wash thermometer is defective. Replace thermometer.

Problem: Doors will not close completely.

- 1. Improper spring tension. Adjust spring tension as required by loosening (not removing) spring bolt nuts and adjusting the tension. Tighten nuts back when done.
- 2. Obstruction in door channel. Remove the obstruction.
- 3. Doors are not square with frame. Adjust the frame to accommodate the doors.

Problem: Water leaks at the wash pump.

- 1. Wash pump seal defective. Replace the seal.
- 2. Petcock or pump drain (if equipped) not shut/tight. Close or tighten.
- 3. Loose hoses (hose clamps) on the wash pump. Tighten the hose clamps.

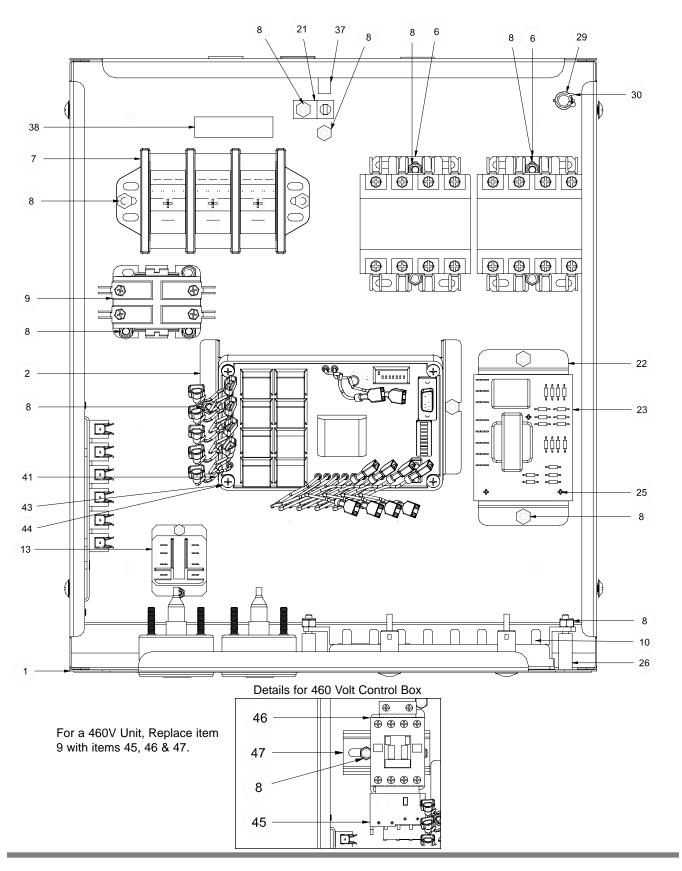
Problem: Will not rinse during autocycle.

- 1. Defective rinse solenoid. Repair or replace the rinse solenoid as required.
- 2. Faulty fill microswitch. Replace microswitch.
- 3. No water to the machine. Verify that there is water at 20±5 PSI connected to the machine.

Problem: Dishes are not coming clean.

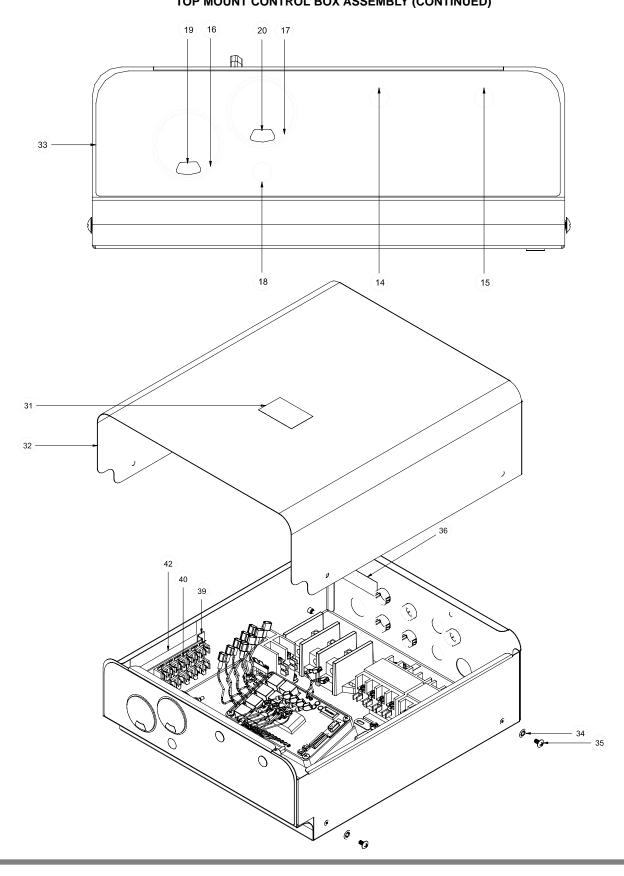
- 1. Machine temperatures are not up to the minimum requirements. Verify that incoming water, rinse water, and wash water match the required temperatures as listed on the machine data plate.
- 2. No detergent/too much detergent. Adjust detergent concentration as required for the amount of water held by the machine.
- 3. Solid dispenser canister is empty. Replace the canister.

TOP MOUNT CONTROL BOX ASSEMBLY



Tempstar HH Series Technical Manual 7610-002-23-32 Issued: 09/14/2007 Revised: N/A

SECTION 5: PARTS SECTION TOP MOUNT CONTROL BOX ASSEMBLY (CONTINUED)

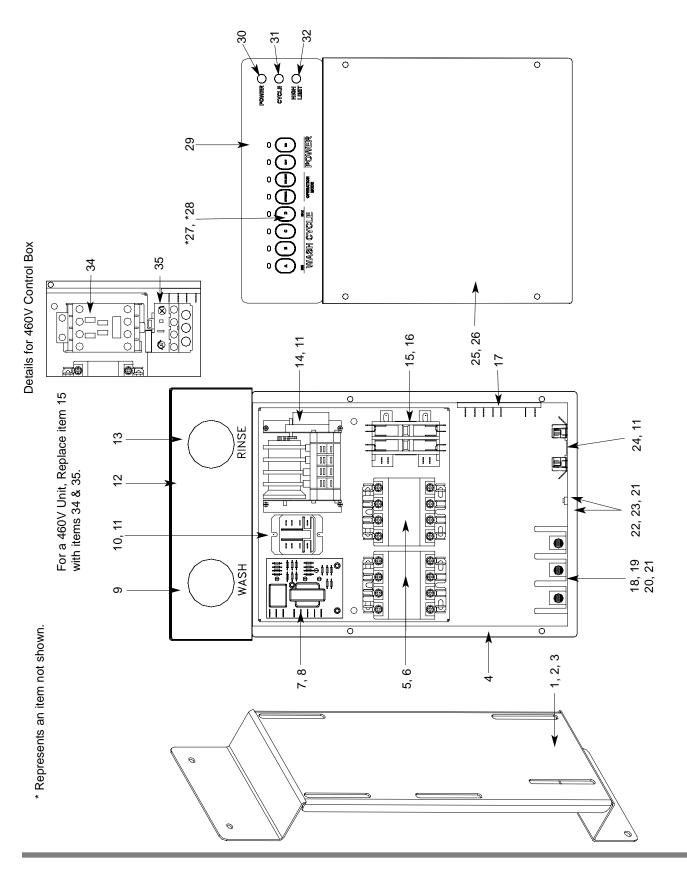


TOP MOUNT CONTROL BOX ASSEMBLY (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|---|-----------------|
| 1 | 1 | Control Box Weldment | 05700-003-30-14 |
| 2 | 1 | Timer Bracket | 05700-003-02-08 |
| 5 | 2 | Locknut, 6-32 S/S Hex with Nylon Insert | 05310-373-03-00 |
| 6 | 2 | Contactor, 4 Pole 220V 1 Phase (Only 1 for No Booster and Steam Models) | 05945-109-01-69 |
| 7 | 1 | Terminal Block, 3 Pole | 05940-011-48-27 |
| 8 | 19 | Locknut, 10-24 S/S Hex with Nylon Insert | 05310-373-01-00 |
| *9 | 1 | Contactor, 2 Pole 220V 20AMP (208-230 Volt Unit Only) | 05945-002-74-20 |
| 10 | 1 | Switch, 8 Button Tap Touch | 05930-001-99-51 |
| 13 | 1 | Relay, 240V, 50/60HZ, Top Mount | 05945-111-47-51 |
| 14 | 1 | Light, Green | 05945-111-44-43 |
| 15 | 1 | Light, Red | 05945-11144-45 |
| 16 | 1 | Thermometer, 96 Lead Rinse | 06685-111-68-49 |
| 17 | 1 | Thermometer, 48 Lead Wash | 06685-111-68-48 |
| 18 | 1 | Light, Amber | 05945-111-44-44 |
| 19 | 1 | Decal, Wash 150 Deg. | 09905-002-97-61 |
| 20 | 1 | Decal, Rinse 180 Deg. | 09905-002-97-62 |
| 21 | 1 | Wire Lug | 05940-200-76-00 |
| 22 | 1 | Bracket, Liquid Level Control Mounting | 05700-002-13-22 |
| 23 | 1 | Liquid Level Control | 06680-200-08-21 |
| 25 | 3 | Screw, 6-32 x 5/8" | 05305-011-39-85 |
| 26 | 2 | Spacer, Switch Panel | 05700-002-50-02 |
| 30 | 1 | Clamp, Nylon Hose .25312 | 05975-002-61-43 |
| 31 | 1 | Decal, Warning-Disconnect Power | 09905-100-75-93 |
| 32 | 1 | Cover, Control Box | 05700-002-23-03 |
| 33 | 1 | Decal, Control Box | 09905-003-21-90 |
| 34 | 4 | Lockwasher, #10 Internal Tooth | 05311-273-03-00 |
| 35 | 4 | Screw, 10-32 x 3/8" Phillips Truss Head | 05305-173-12-00 |
| 36 | 1 | Decal, Copper Conductors | 09905-011-47-35 |
| 37 | 1 | Decal, Ground | 09905-011-86-86 |
| 38 | 1 | Decal, L1, L2 | 09905-002-78-67 |
| 39 | 1 | Bracket, Fuse Strip Holder | 05700-002-42-03 |
| 40 | 1 | Holder, Fuse, 6 Pole | 05920-002-42-13 |
| 41 | 1 | Timer, Universal | 05945-003-33-09 |
| 42 | 1 | Decal, Dispenser Connection | 09905-003-34-09 |
| 43 | 4 | Screw, 10-32 X 1 Phillips Pan Head | 05305-002-19-42 |
| 44 | 4 | Locknut, 10-32 S/S Hex with Nylon Insert | 05310-373-02-00 |
| *45 | 1 | Overload, TK-ONY, (460 Volt Unit Only) | 05945-002-65-02 |
| *46 | 1 | Motor Contactor, SC-03Y, (460 Volt Unit Only) | 05945-002-65-00 |
| *47 | 1 | Din Rail 2-3/4" (460 Volt Unit Only) | 05700-001-84-65 |

^{*} For a 460V Unit, Replace item 9 with items 45, 46 & 47.

SIDE MOUNT CONTROL BOX ASSEMBLY



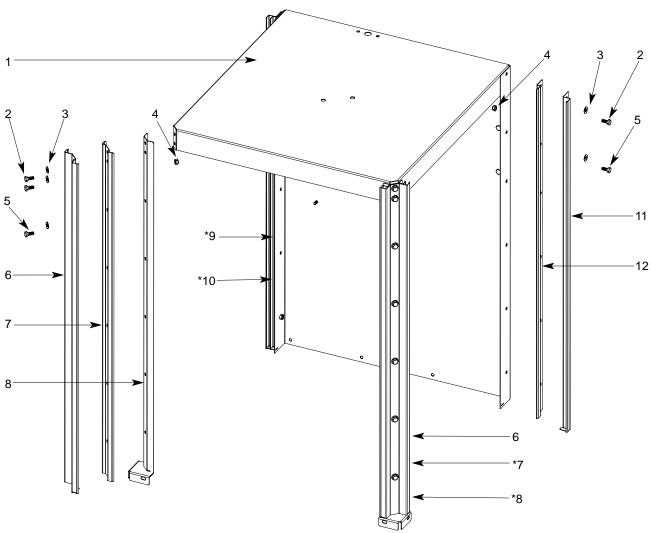
SIDE MOUNT CONTROL BOX ASSEMBLY (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|---|-----------------|
| 1 | 1 | Bracket, Electrical Box Mounting | 05700-002-18-48 |
| 2 | 9 | Locknut, 1/4"-20 S/S Hex with Nylon Insert | 05310-374-01-00 |
| 3 | 9 | Washer, 1/4"-20 I.D. S/S | 05311-174-01-00 |
| 4 | 1 | Control Box Weldment, Right Hand | 05700-002-06-48 |
| 4 | 1 | Control Box Weldment, Left Hand | 05700-002-23-08 |
| 5 | 2 | Contactor, 4 Pole 220V 1 Phase (Only 1 for No Booster and Steam Models) | 05945-109-01-69 |
| 6 | 4 | Screw, 10-32 x 1/2" Phillips Pan Head with Washer | 05305-002-32-37 |
| 7 | 1 | Liquid Level Control | 06680-200-08-21 |
| 8 | 3 | Screw, 6-32 x 5/8" | 05305-011-39-85 |
| 9 | 1 | Thermometer, 48 Lead, Wash | 06685-111-68-48 |
| | 1 | Decal, Wash 150 Deg. | 09905-002-97-61 |
| 10 | 1 | Relay, 240V, 50/60HZ, Top Mount | 05945-002-47-74 |
| 11 | 8 | Screw, 6-32 x 3/8" SEMS with External Tooth Washer | 05305-002-25-91 |
| 12 | 1 | Decal, Control Box Gauge | 09905-002-10-69 |
| 13 | 1 | Thermometer, 96 Lead Rinse | 06685-111-68-49 |
| | 1 | Decal, Rinse 180 Deg. | 09905-002-97-62 |
| 14 | 1 | Timer, 4CKT 208-230V Single REV (Shown) | 05945-303-31-00 |
| 14 | 1 | Timer, Universal | 05945-003-07-48 |
| | 1 | Timer Bracket | 05700-003-02-08 |
| | 6 | Holder, Keystone | 05940-002-21-87 |
| | 1 | Keying Plug | 05940-003-11-66 |
| | 2 | Connector | 05940-003-11-65 |
| 15 | 1 | Contactor, 2 Pole 220V 20AMP(208-230 Volt Unit Only) | 05945-002-74-20 |
| 16 | 3 | Screw, 10-32 x 3/8" Phillips Pan Head | 05305-173-26-00 |
| 17 | 1 | Timer, Cycle Delay | 05945-002-13-78 |
| 18 | 1 | Terminal Block, 3 Pole | 05940-011-48-27 |
| 19 | 1 | Decal, L1, L2, L3 | 09905-101-12-66 |
| 20 | 1 | Decal, Copper Conductors | 09905-011-47-35 |
| 21 | 4 | Locknut, 10-24 S/S Hex with Nylon Insert | 05310-373-01-00 |
| 22 | 1 | Wire Lug | 05940-200-76-00 |
| 23 | 1 | Decal, Ground | 09905-011-86-86 |
| 24 | 1 | Holder, Fuse | 05920-401-03-14 |
| 25 | 1 | Cover, Control Box Weldment | 05700-002-06-52 |
| 26 | 4 | Bolt, 10-32 x 1/2" Slotted Truss | 05305-173-04-00 |
| 27* | 1 | Switch, 8 Button Tap Touch | 05930-001-99-51 |
| 28* | 1 | Spacer, Switch Panel | 05700-002-50-02 |
| 29 | 1 | Decal, Control Box Cover | 09905-002-00-45 |
| 30 | 1 | Light, Red | 05945-504-07-18 |
| 31 | 1 | Light, Green Indicator | 05945-504-08-18 |
| 32 | 1 | Light, Amber | 05945-504-06-18 |
| 33* | 1 | Cover, Dielectric Control Panel | 05700-021-50-89 |
| 34 | 1 | Contactor, 2 Pole 220V 20AMP (460 Volt Unit Only) | 05945-002-65-00 |
| 35 | 1 | Overload (460 Volt Unit Only) | 05945-002-65-01 |
| | | | |

^{*} Represents an item not shown.

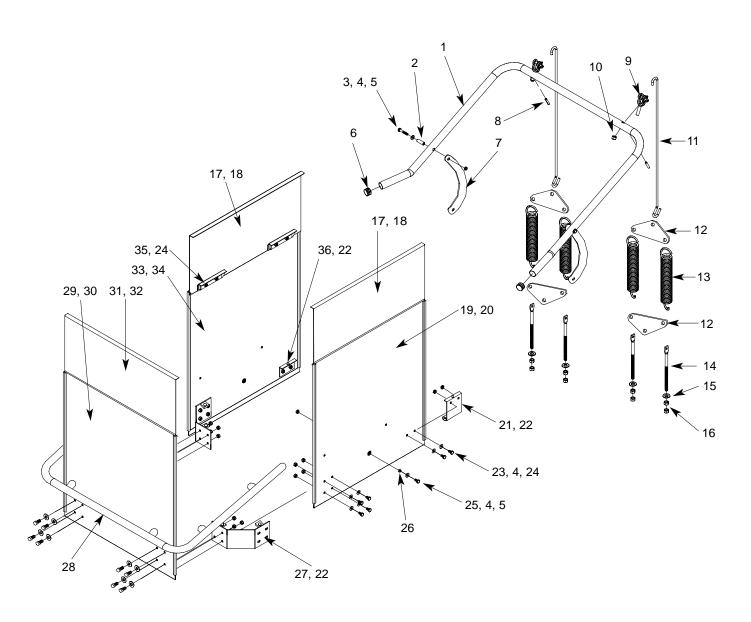
SECTION 5: PARTS SECTION HOOD ASSEMBLY

* Represents an item not shown.



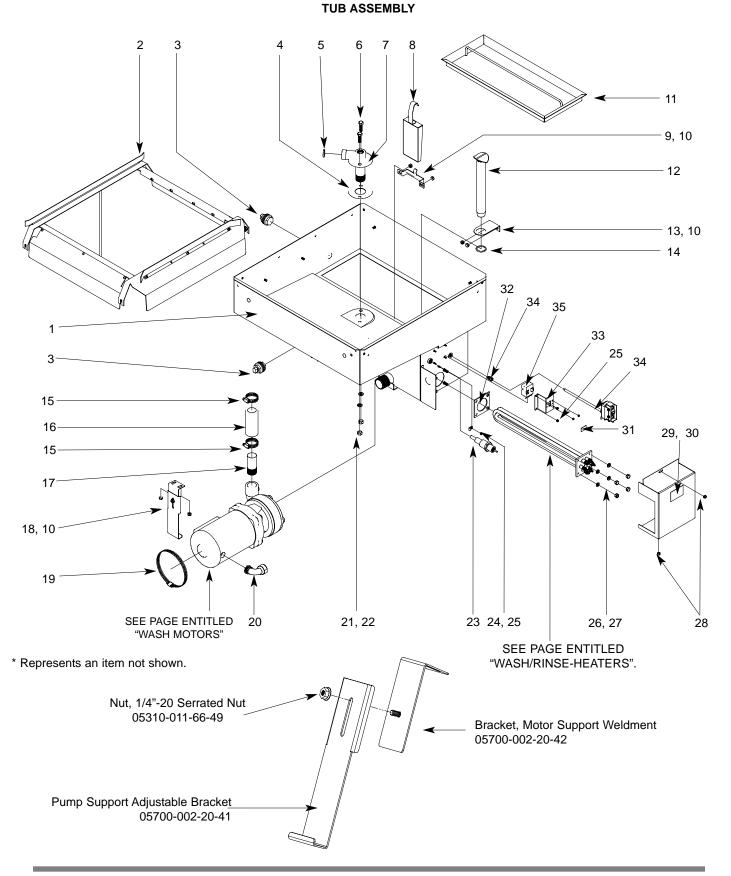
| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Hood Weldment (Side Mount Control Box) (Shown) | 05700-002-01-23 |
| 1 | 1 | Hood Weldment (Top Mount Control Box) | 05700-003-52-53 |
| 2 | 6 | Bolt, 1/4"- 20 x 5/8" Long Hex | 05305-274-24-00 |
| 3 | 26 | Washer, 1/4" ID S/S | 05311-174-01-00 |
| 4 | 26 | Locknut, 1/4"-20 S/S Hex with Nylon Inserts | 05310-374-01-00 |
| 5 | 26 | Bolt, 1/4"-20 x 1/2" Long Hex | 05305-274-02-00 |
| 6 | 2 | Right/Left Front Outer Door Guide | 05700-031-76-85 |
| 7 | 2 | Right/Left Front Inner Door Guide | 05700-031-76-82 |
| 8 | 2 | Right/Left Front Hood Support Weldment | 05700-002-17-68 |
| 9 | 1 | Left Rear Outer Door Guide | 05700-031-76-34 |
| 10 | 1 | Left Rear Inner Door Guide | 05700-031-76-33 |
| 11 | 1 | Right Rear Outer Door Guide | 05700-031-76-35 |
| 12 | 1 | Right Rear Inner Door Guide | 05700-031-76-32 |
| | | | |

SECTION 5: PARTS SECTION CANTILEVER ARM/DOOR ASSEMBLIES



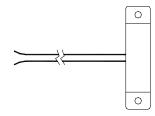
CANTILEVER ARM/DOOR ASSEMBLIES (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|--------|--|-----------------|
| 1 | 1 | Cantilever Arm | 05700-031-92-44 |
| 2 | 2 | Sleeve, Cantilever Arm | 05700-000-85-69 |
| 3 | 2 | Screw, 1/4"-20 x 1 1/2" Long Hex Head | 05305-274-23-00 |
| 4 | 4 | Washer, 1/4" ID S/S | 05311-174-01-00 |
| 5 | 4 | Locknut, 1/4"-20 S/S Low Profile with Nylon Insert | 05310-374-02-00 |
| 6 | 4 | Plug, Cantilever | 05340-011-35-00 |
| 7 | 2 | Connecting Link | 05700-021-92-45 |
| 8 | 2 | Spring Pin, 1/4" x 1 1/8" Long | 05315-407-06-00 |
| 9 | 2 | Yoke Assembly | 05700-000-75-77 |
| 10 | 2 | Nut, 3/8"-16 S/S Hex Locking | 05310-256-04-00 |
| 11 | 2 | Rod, Spring Connecting | 05700-002-00-91 |
| 12 | 4 | Plate, Spring Multiplier | 05700-002-00-88 |
| 13 | 4 | Spring, Cantilever Door | 05340-111-35-22 |
| 14 | 4 | Bolt, Cantilever Hanger Eye 3/8"-16 | 05306-956-05-00 |
| 15 | 4 | Washer, Impeller | 05311-176-02-00 |
| 16 | 8 | Nut, 3/8"-16 S/S Hex | 05310-276-01-00 |
| * | 2 | Door, Upper, Left and Right Assemblies | 05700-002-01-30 |
| 17 | 2 | Door, Upper, Left and Right Weldment | 05700-002-29-59 |
| 18 | 4 | Glide, Upper Door | 05700-002-00-83 |
| * | i 1 | Door, Lower, Right Assembly | 05700-002-01-33 |
| 19 | 1 | Door, Lower, Right | 05700-031-76-80 |
| 20 | 2 | Glide, Lower Door | 05700-002-23-64 |
| 21 | 1 | Door Stop Magnet Assembly | 06401-003-08-68 |
| * | 1 | Door Stop Magnet Weldment | 05700-002-01-27 |
| * | 1 | Magnet | 05930-111-69-25 |
| * | 2 | End Cap | 05700-011-60-92 |
| 22 | 6 | Wear Button | 05700-011-88-01 |
| 23 | 20 | Screw, 1/4"-20 x 5/8" | 05305-274-24-00 |
| 24 | 20 | Locknut, 1/4"-20 S/S Hex with Nylon Insert | 05310-374-01-00 |
| 25 | 2 | Screw, 1/4"-20 x 1/2" Long Hex Head | 05305-274-02-00 |
| 26 | 2 | Spacer, PB Bolt | 05700-000-29-40 |
| 27 | 2 | Bracket, Door Connector | 06401-003-08-75 |
| 28 | 1 | Handle, Front Door Weldment | 06401-003-08-67 |
| * | 1 | Door, Lower, Front Assembly | 05700-002-01-31 |
| 29 | 1 | Door, Lower, Front | 05700-031-76-77 |
| 30 | 2 | Glide, Lower Door | 05700-002-23-64 |
| * | 1 | Door, Upper Front Assembly | 05700-002-24-92 |
| 31 | 1 | Door, Upper, Front Weldment | 05700-002-29-57 |
| 32 | 2 | Glide, Upper Door | 05700-002-00-83 |
| * | 1 | Door, Lower, Left Assembly | 05700-002-01-32 |
| 33 | 1 | Door, Lower, Left | 05700-031-76-79 |
| 34 | 2 | Glide, Lower Door | 05700-002-23-64 |
| 35 | 6 | Door Stop Weldment | 05700-002-29-60 |
| 36 | 1 | Door Stop | 06401-003-08-69 |
| 37* | 2 | Cantilever Arm Support Bracket | 09515-003-15-64 |
| 38* | 6 | Wear Button | 05700-011-88-01 |
| 00 | U | Trodi Batton | 30700 011-00-01 |



TUB ASSEMBLY (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Tub Weldment | 05700-002-01-25 |
| 2 | 1 | Rack Assembly | 05700-002-01-00 |
| 3 | 2 | Bulk Head Plug | 04730-609-05-00 |
| 4 | 1 | Gasket | 05700-111-35-03 |
| 5 | 1 | O-ring | 05330-400-05-00 |
| 6 | 4 | Bolt, Hex 3/8"-16 x 1 1/4" Long | 05305-276-10-00 |
| 7 | 1 | Lower Wash Manifold Weldment | 05700-031-46-00 |
| 8 | 1 | Suction Strainer Weldment | 05700-002-16-13 |
| 9 | 1 | Suction Strainer Bracket | 05700-002-18-28 |
| 10 | 8 | Locknut, 1/4"-20 with Nylon Insert | 05310-374-02-00 |
| 11 | 1 | Strainer Weldment | 05700-031-50-07 |
| 12 | 1 | Wash Overflow Weldment | 05700-001-25-69 |
| * | 1 | Support, Ball Stop Lift | 05700-002-91-55 |
| * | 1 | Ball Stop Lift | 05700-003-07-50 |
| 13 | 1 | Overflow Support Bracket | 05700-001-27-55 |
| 14 | 1 | O-Ring | 05330-400-05-00 |
| 15 | 2 | Clamp, Hose 1 5/16" to 2 1/4" | 04730-719-01-37 |
| 16 | 1 | Discharge Hose | 05700-011-88-24 |
| 17 | 1 | Nipple | 05700-021-34-84 |
| 18 | 1 | Pump Support Bracket Assembly | 05700-002-22-73 |
| 19 | 1 | Clamp, Hose 5 5/8" to 6" | 04730-011-34-90 |
| 20 | 1 | Connector, 1/2" 90° | 05975-111-01-00 |
| 21 | 4 | Nut, 3/8"-16 S/S Hex | 05310-276-01-00 |
| 22 | 4 | Lockwasher, 3/8" | 05311-276-01-00 |
| 23 | 1 | High Water Probe | 06680-200-02-68 |
| 24 | 1 | Clamp, 1/8" Nylon | 05975-601-10-15 |
| 25 | 3 | Locknut, 6-32 with Nylon Insert | 05310-373-03-00 |
| 26 | 4 | Lockwasher, 5/16", S/S, Split | 05311-275-01-00 |
| 27 | 4 | Nut, Hex, 5/16"-18, S/S | 05310-275-01-00 |
| 28 | 4 | Locknut, 10-24 with Nylon Insert | 05310-373-01-00 |
| 29 | 1 | Cover, Wash Heater | 05700-031-47-57 |
| 30 | 1 | Decal, Warning-Disconnect Power | 09905-100-75-93 |
| 31 | 1 | Decal, High Limit | 09905-011-84-32 |
| 32 | 1 | Wash Heater Gasket | 05330-011-47-79 |
| 33 | 1 | Thermostat Bracket | 05700-011-81-64 |
| 34 | 1 | Thermostat, Regulating with Imperial Brass Fitting | 06401-003-18-22 |
| 35 | 1 | Thermostat, High Limit | 05930-011-49-43 |

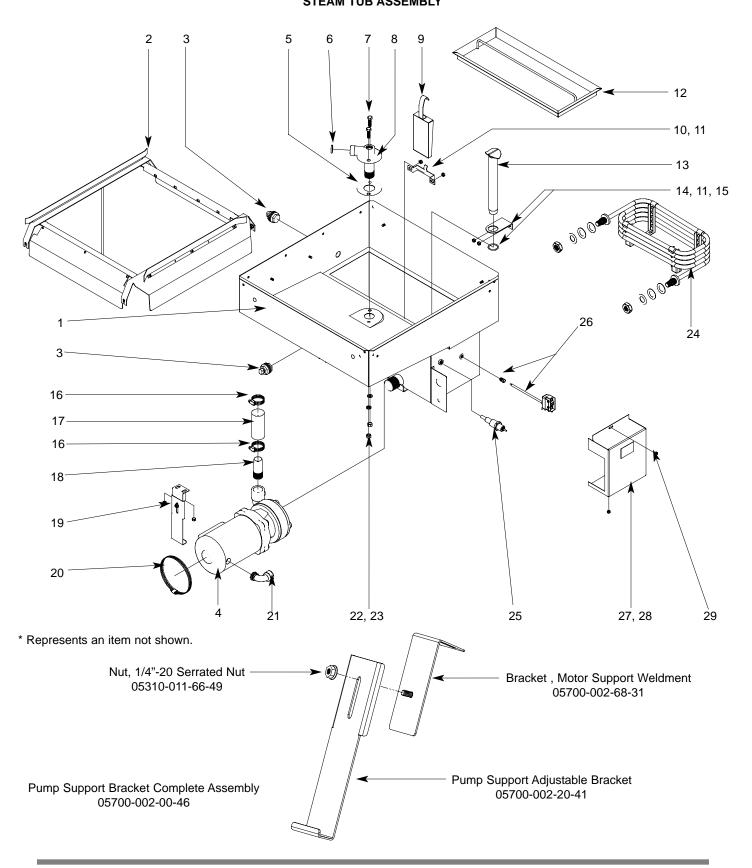


Magnetic Reed Switch 05930-003-05-84

Associated Hardware: Lockwasher, #8 Internal Tooth Locknut, 1/4"-20 S/S Hex w/Nylon Insert Screw, 8-32 x 3/4" Round Head

05311-272-03-00 05310-374-01-00 05305-172-06-00

SECTION 5: PARTS SECTION STEAM TUB ASSEMBLY

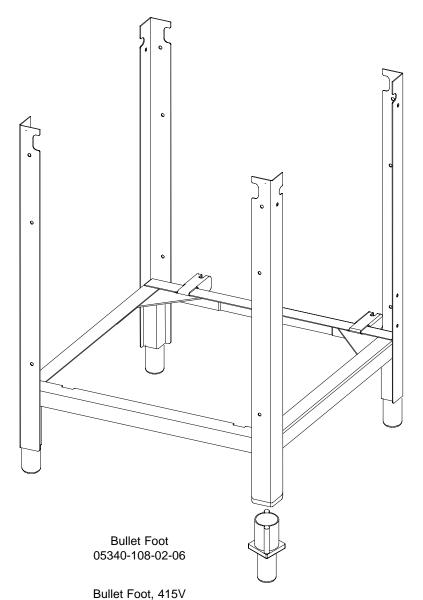


STEAM TUB ASSEMBLY (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-------------------------------|
| 1 | 1 | Tub Weldment | 05700-002-63-13 |
| 2 | 1 | Rack Assembly | 05700-002-01-00 |
| 3 | 2 | Bulk Head Plug | 04730-609-05-00 |
| 4 | 1 | Motor & Pump Assembly | See page entitled Wash Motors |
| 5 | 1 | Gasket | 05700-111-35-03 |
| 6 | 1 | O-ring | 05330-400-05-00 |
| 7 | 4 | Bolt, Hex 3/8"-16 x 1 1/4" Long | 05305-276-10-00 |
| 8 | 1 | Lower Wash Manifold Weldment | 05700-031-46-00 |
| 9 | 1 | Suction Strain Weldment | 05700-001-22-23 |
| 10 | 1 | Suction Strain Bracket | 05700-001-22-24 |
| 11 | 8 | Locknut, 1/4"-20 with Nylon Insert | 05310-374-02-00 |
| 12 | 1 | Strainer Weldment | 05700-021-50-07 |
| 13 | 1 | Wash Overflow Weldment | 05700-001-25-69 |
| * | 1 | Support, Ball Stop Lift | 05700-002-91-55 |
| * | 1 | Ball Stop Lift | 05700-003-07-50 |
| 14 | 1 | Overflow Support Bracket | 05700-001-27-55 |
| 15 | 1 | O-Ring | 05330-400-05-00 |
| 16 | 2 | Clamp, Hose 1 5/16" to 2 1/4" | 04730-719-01-37 |
| 17 | 1 | Discharge Hose | 05700-011-88-24 |
| 18 | 1 | Nipple | 05700-021-34-84 |
| 19 | 1 | Pump Support Bracket Assembly | 05700-002-00-46 |
| 20 | 1 | Clamp, Hose 5 5/8" to 6" | 04730-011-34-90 |
| 21 | 1 | Connector, 1/2" 90° | 05975-111-01-00 |
| 22 | 4 | Nut, 3/8"-16 S/S Hex | 05310-276-01-00 |
| 23 | 4 | Lockwasher, 3/8" | 05311-276-01-00 |
| 24 | 1 | Steam Coil Assembly | 05700-002-08-62 |
| 25 | 1 | Probe, High Water | 06680-200-02-68 |
| 26 | 1 | Thermostat, Regulating with Imperial Brass Fitting | 06401-003-18-23 |
| 27 | 1 | Cover, Wash Heater | 05700-031-47-57 |
| 28 | 1 | Decal, Warning-Disconnect Power | 09905-100-75-93 |
| 29 | 2 | Locknut, 10-24 with Nylon Insert | 05310-373-01-00 |

FRAME ASSEMBLY

Cover, Front Panel 05700-002-01-42



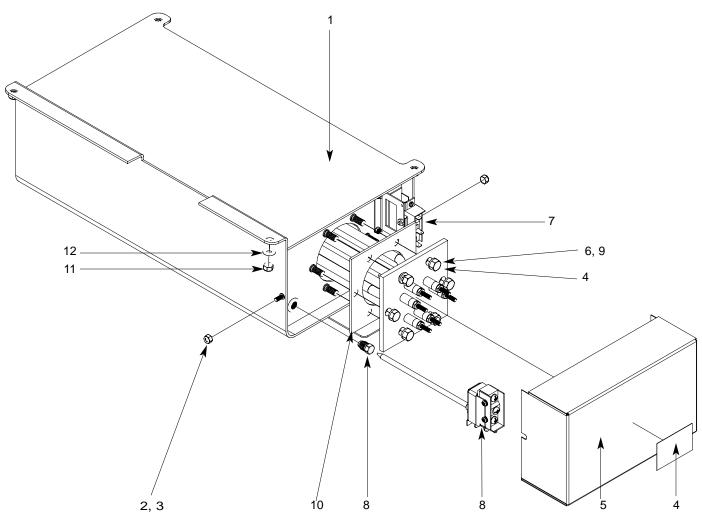
Frame Weldment 05700-002-03-49

Frame Weldment, 415V 05700-002-62-41

05340-002-14-55

Flange Feet 05340-002-01-15

RINSE TANK ASSEMBLY

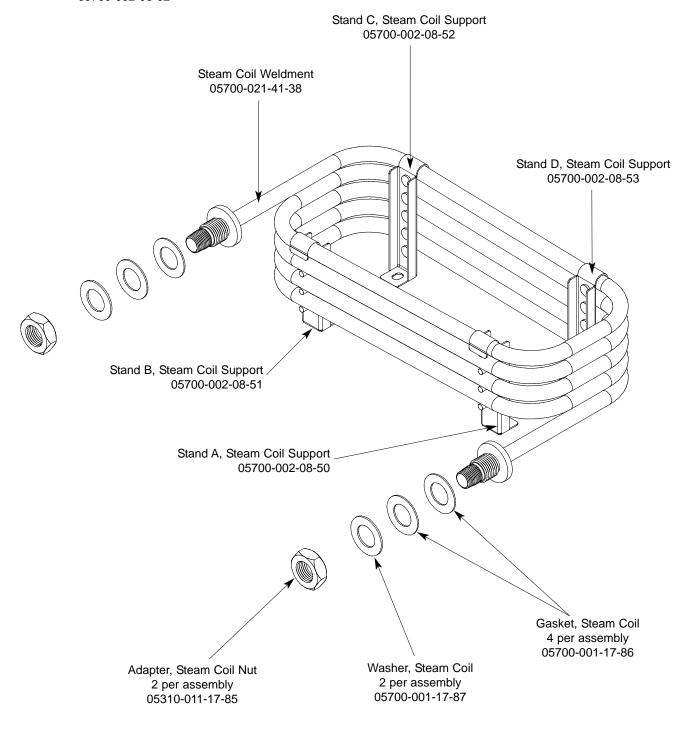


SEE PAGE ENTITLED "WASH HEATERS/RINSE HEATERS".

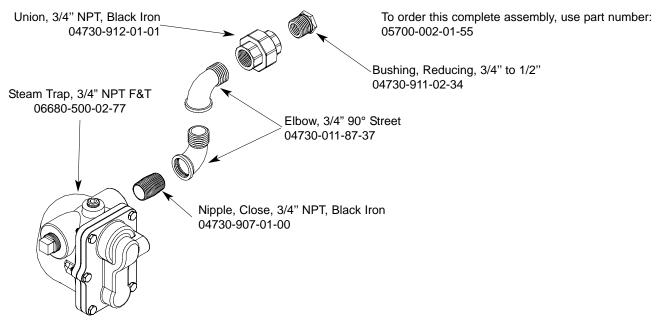
| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Booster Tank Weldment | 05700-002-10-19 |
| 2 | 2 | Locknut, 10-24 with Nylon Insert | 05310-373-01-00 |
| 3 | 2 | Washer, #10 S/S Flat | 05311-173-01-00 |
| 4 | 1 | Decal, Warning - Disconnect Power | 09905-100-75-93 |
| 5 | 1 | Booster Tank Cover Weldment | 05700-002-16-51 |
| 6 | 6 | Nut, Hex, 5/16"-18 | 05310-275-01-00 |
| 7 | 1 | Thermostat, High Limit | 05930-011-49-43 |
| 8 | 1 | Thermostat, Regulating with Imperial Brass Fitting | 06401-011-66-55 |
| 9 | 6 | Lockwasher, 5/16" Split | 05311-275-01-00 |
| 10 | 1 | Gasket, Rinse Heater | 05330-200-02-70 |
| 11 | 4 | Locknut, 1/4"-20 with Nylon Insert | 05310-374-01-00 |
| 12 | 4 | Washer, 1/4" S/S Flat | 05311-174-01-00 |

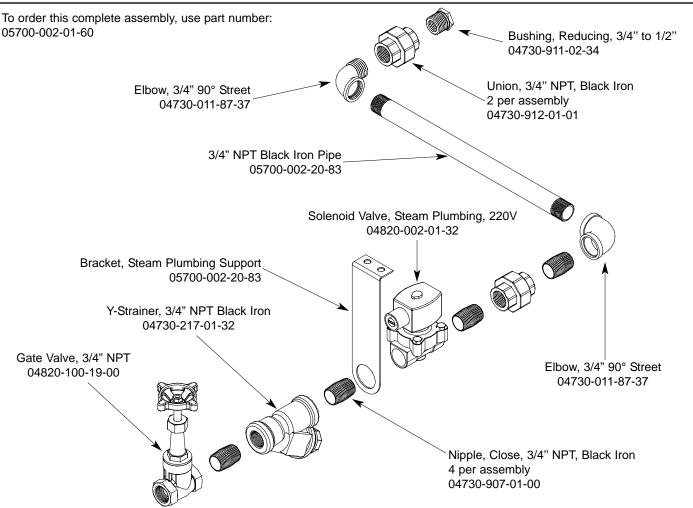
SECTION 5: PARTS SECTION COIL ASSEMBLY

Complete Steam Coil Assembly 05700-002-08-62



INCOMING STEAM PLUMBING ASSEMBLIES





MOTORS - WASH HEATERS - RINSE HEATERS

The models covered in this manual come supplied with various wash motor assemblies (a wash motor assembly includes the wash motor and the pump end), depending on the characteristics of the machine. To ensure that you order the correct wash motor assembly for the model you are servicing, please refer to the following table:

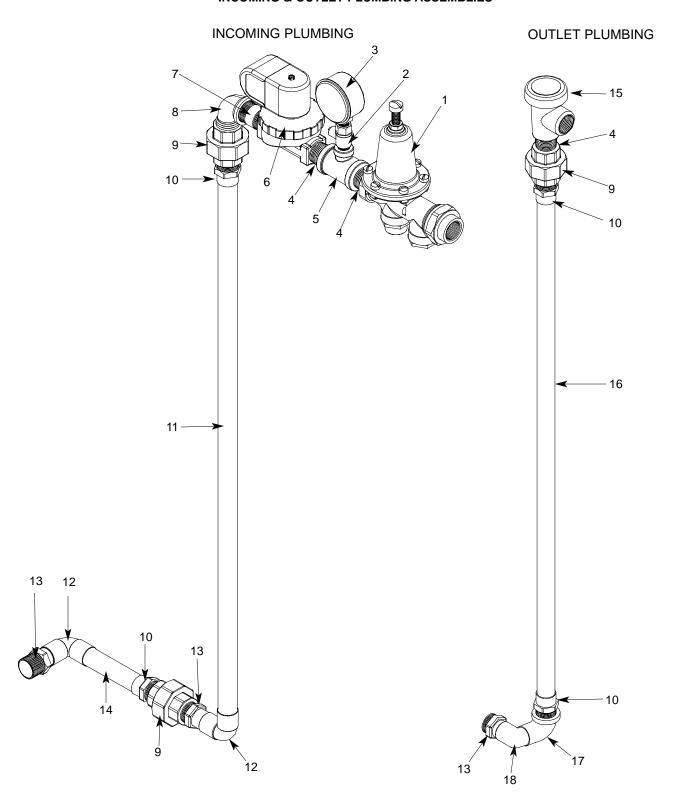
| <u>Model</u> | <u>Volts</u> | <u>Hz</u> | <u>Phase</u> | Wash Motor Assembly |
|--------------------------|--------------|-----------|--------------|---------------------|
| Tempstar HH | 415 | 50 | 3 | 06105-002-45-07 |
| Tempstar HH, HH NB, HH S | 208 | 60 | 1 | 06105-002-01-29 |
| Tempstar HH, HH NB, HH S | 230 | 60 | 1 | 06105-002-01-29 |
| Tempstar HH, HH NB, HH S | 208 | 60 | 3 | 06105-002-01-29 |
| Tempstar HH, HH NB, HH S | 230 | 60 | 3 | 06105-002-01-29 |
| Tempstar HH, HH NB, HH S | 460 | 60 | 3 | 06105-002-09-30 |

Important note: When servicing a wash motor, it is important to refer to the wiring schematic found on the motor, to ensure that the motor is wired correctly. Different manufacturers of motors may not use the same wire color codes and therefore, your new motor, which may have been built by someone different than who built your original motor, may not connect using the same wires. Always refer to the wiring diagrams on the motor you are installing. If the motor you are installing has had the schematic removed, contact Jackson MSC immediately for technical support.

The Tempstar models covered in this manual come supplied with various heaters, depending on the characteristics of the machine. To ensure that you order the correct heater for the model you are servicing, please refer to the following table:

| | | | | | 40°F Rise | 70°F Rise |
|----------------|--------------|-----------|--------------|------------------|----------------------|----------------------|
| <u>Model</u> | <u>Volts</u> | <u>Hz</u> | <u>Phase</u> | Wash Heater | Rinse Heater (12 KW) | Rinse Heater (14 KW) |
| Tempstar HH | 415 | 50 | 3 | 04540-002-43-09 | 04540-002-43-10 | N/A |
| Tempstar HH | 208 | 60 | 1 | 04540-121-47-39 | 04540-121-47-40 | 04540-121-63-38 |
| Tempstar HH | 230 | 60 | 1 | 04540-121-47-39 | 04540-121-47-40 | 04540-121-63-38 |
| Tempstar HH | 208 | 60 | 3 | 04540-121-47-39 | 04540-121-47-40 | 04540-121-63-38 |
| Tempstar HH | 230 | 60 | 3 | 04540-121-47-39 | 04540-121-47-40 | 04540-121-63-38 |
| Tempstar HH | 460 | 60 | 3 | 04540-121-65-99 | 04540-100-01-15 | 04540-121-63-39 |
| | | | | | | |
| Tempstar HH NB | 208 | 60 | 1 | 04540-121-47-39 | | |
| Tempstar HH NB | 230 | 60 | 1 | 04540-121-47-39 | | |
| Tempstar HH NB | 208 | 60 | 3 | 04540-121-47-39 | | |
| Tempstar HH NB | 230 | 60 | 3 | 04540-121-47-39 | | |
| Tempstar HH NB | 460 | 60 | 3 | 04540-121-65-99 | | |
| T | 000 | 00 | | 0.4540.404.47.00 | | |
| Tempstar HH S | 208 | 60 | 1 | 04540-121-47-39 | | |
| Tempstar HH S | 230 | 60 | 1 | 04540-121-47-39 | | |
| Tempstar HH S | 208 | 60 | 3 | 04540-121-47-39 | | |
| Tempstar HH S | 230 | 60 | 3 | 04540-121-47-39 | | |
| Tempstar HH S | 460 | 60 | 3 | 04540-121-65-99 | | |

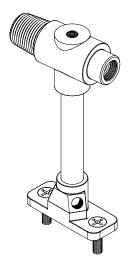
INCOMING & OUTLET PLUMBING ASSEMBLIES



INCOMING & OUTLET PLUMBING ASSEMBLIES (CONTINUED)

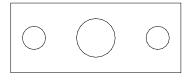
| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Water Pressure Regulator, 3/4" NPT | 06685-011-58-22 |
| 2 | 1 | Valve, Ball, 1/4" NPT | 04810-011-72-67 |
| 3 | 1 | Gauge, Pressure, 0-100 PSI | 06685-111-88-34 |
| 4 | 2 | Nipple, Close, 3/4" NPT | 04730-207-34-00 |
| 5 | 1 | Tee, Brass, 3/4" NPT x 3/4" NPT x 1/4" NPT | 04730-211-04-00 |
| 6 | 1 | Valve, Solenoid, 3/4" NPT | 04810-100-03-18 |
| 7 | 1 | Nipple, Brass, 3/4" NPT x 2" Long | 04730-207-46-00 |
| 8 | 1 | Elbow, 3/4" NPT, Brass, Street | 04730-206-04-34 |
| 9 | 3 | Union, 3/4" NPT, Brass with O-ring | 05700-002-63-79 |
| 10 | 4 | Adapter, 3/4" Male | 04730-401-11-01 |
| 11 | 1 | Tube, Copper, 3/4" x 48" Long | 05700-011-87-89 |
| 12 | 2 | Elbow, 3/4", 90°, #707 Copper | 04730-406-16-01 |
| 13 | 3 | Adapter, 3/4", 604-2 | 04730-401-10-01 |
| 14 | 1 | Tube, Copper, 3/4" x 3 3/4" Long | 05700-011-58-28 |
| 15 | 1 | Vacuum Breaker, 3/4" NPT | 04820-002-53-77 |
| 16 | 1 | Tube, Copper, 3/4" x 44 3/8" Long | 05700-002-25-05 |
| 17 | 1 | Elbow, 3/4" 90° Copper to FSPS Brass | 04730-406-41-01 |
| 18 | 1 | Elbow, 3/4" 90° Copper to Copper Street | 04730-406-40-01 |
| 19* | 2 | Double Pipe Clamp | 05700-002-23-89 |
| 20* | 1 | Bracket, Incoming Plumbing Support | 05700-021-34-02 |

When servicing plumbing components, take care not to damage the threads of each individual item. Damaged threads can cause leaks and loss of pressure, which could adversely effect the performance of the dishmachine. It is strongly recommended that teflon thread tape, used in conservative amounts, be applied to threads when joining components together. It is not advised to use thread sealing compounds, sometimes referred to as "pipe dope". Compounds can be ejected from the threads during the tightening process and become lodged in key components, thereby rendering them useless. Some of the components include the solenoid valve and the pressure gauge isolation ball valve.



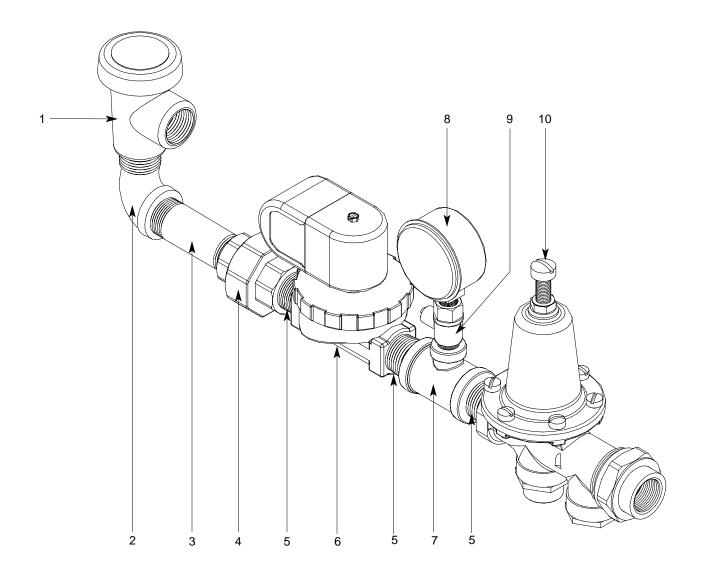
Rinse Injector Weldment 1 per machine 05700-021-47-65

Plug, 1/8" NPT, Brass 3 per Rinse Injector 04730-209-07-37



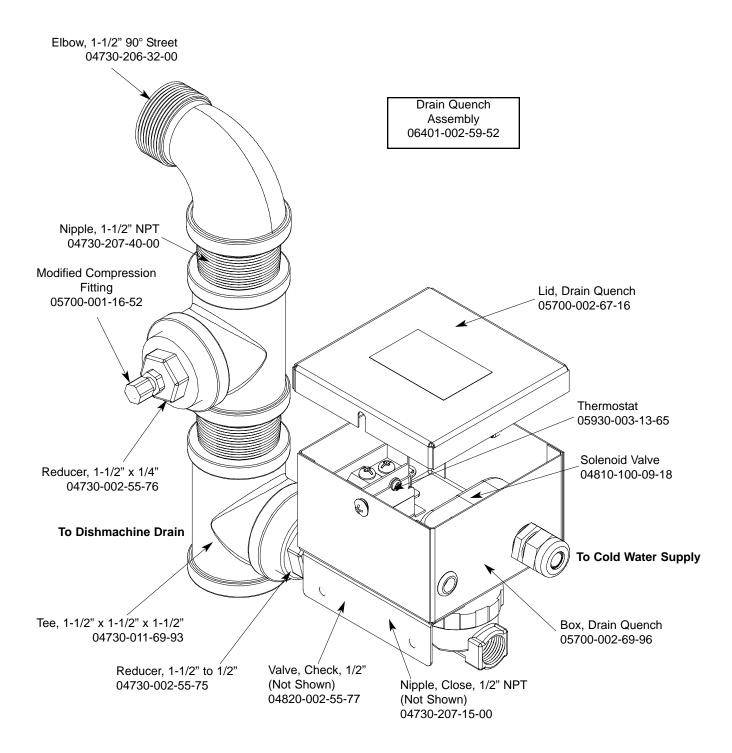
Rinse Injector Gasket 2 per machine 05330-111-42-81

INCOMING PLUMBING (TEMPSTAR HH NB)



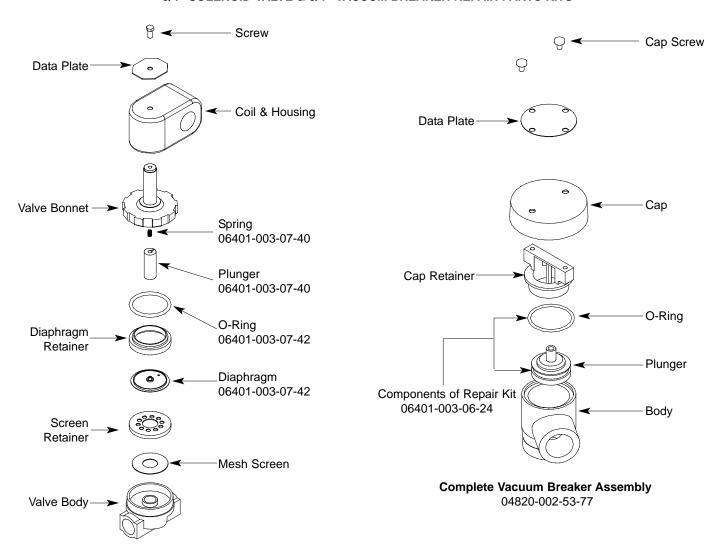
| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Vacuum Breaker, 3/4" NPT | 04820-002-53-77 |
| 2 | 1 | Elbow, Brass, Street, 3/4" NPT | 04730-206-04-34 |
| 3 | 1 | Nipple, Brass, 3/4" NPT x 3" Long | 04730-011-38-29 |
| 4 | 1 | Union, 3/4" NPT, Brass with O-ring | 05700-002-63-79 |
| 5 | 3 | Nipple, Close, Brass, 3/4" NPT | 04730-207-34-00 |
| 6 | 1 | Valve, Solenoid, 3/4" NPT | 04810-100-03-18 |
| 7 | 1 | Tee, Brass, 3/4" NPT x 3/4" NPT x 1/4" NPT | 04730-211-04-00 |
| 8 | 1 | Pressure Gauge, 0-100 PSI | 06685-111-59-66 |
| 9 | 1 | Valve, Ball, Bronze, 1/4" NPT | 04810-011-72-67 |
| 10 | 1 | Water Pressure Regulator | 06685-011-58-22 |

DRAIN QUENCH ASSEMBLY



From the existing drain, attach the two additional Tees using the 1-1/2" NPT Close Nipples. Tighten the Reducers into the Tees as shown above. Attach the Modified Compression Fitting into the 1-1/2" to 1/4" Reducer. Position the bulb of the thermostat so that it rests approximately 1/4" from the bottom of the Tee. Tighten the Modified Compression Fitting as required. Attach to the incoming cold water line. Use pipe dope or thread tape as required to prevent any leaks.

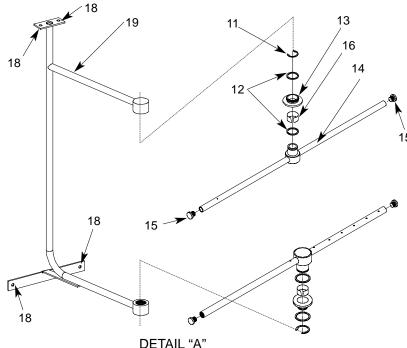
3/4" SOLENOID VALVE & 3/4" VACUUM BREAKER REPAIR PARTS KITS



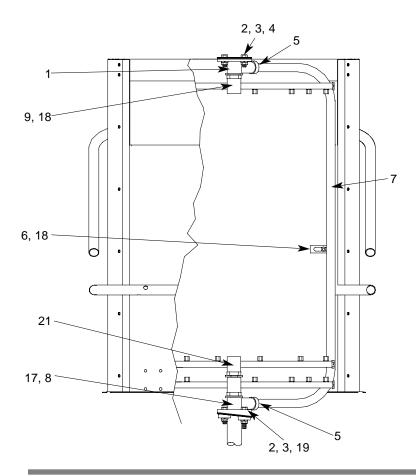
Complete 240 Volt Solenoid Valve Assembly 04810-100-03-18

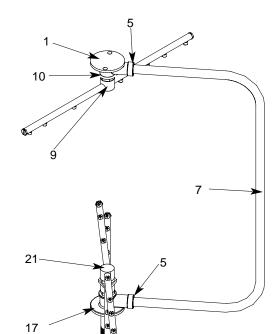
Coil & Housing only 06401-003-07-44

WASH & RINSE ARM/MANIFOLD ASSEMBLIES



<u>DETAIL "A"</u> FINAL RINSE ARMS & MANIFOLD



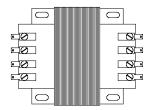


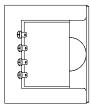
<u>DETAIL "B"</u> WASH ARMS & MANIFOLD

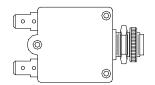
WASH & RINSE ARM/MANIFOLD ASSEMBLIES (CONTINUED)

| ITEM | QTY | DESCRIPTION | Mfg. No. |
|------|-----|--|-----------------|
| 1 | 1 | Upper Manifold | 05700-031-34-82 |
| 2 | 4 | Nut, 3/8"-16 S/S Hex | 05310-276-01-00 |
| 3 | 4 | Lockwasher, 3/8 | 05311-276-01-00 |
| 4 | 2 | Bolt, Hex 3/8"-16 x 7/8" Long | 05306-011-36-95 |
| 5 | 2 | O Ring | 05330-111-35-15 |
| 6 | 1 | Positioning Bracket, Manifold Tube | 05700-011-34-63 |
| 7 | 1 | Tube, Wash Manifold | 05700-031-92-58 |
| 8 | 2 | Gasket, Manifold | 05700-111-35-03 |
| * | 1 | Wash Arm Assembly | 05700-021-35-39 |
| 9 | 1 | Wash Arm Weldment | 05700-021-35-93 |
| 10 | 1 | Bearing Assembly | 05700-021-35-97 |
| * | 1 | O-ring | 05330-002-60-69 |
| * | 1 | Wash Arm Assembly, 415V | 05700-021-63-81 |
| 9 | 1 | Wash Arm Weldment, 415V | 05700-021-63-42 |
| 10 | 1 | Bearing Assembly, 415V | 05700-021-63-80 |
| * | 2 | Rinse Arm Assembly | 05700-002-58-09 |
| 11 | 2 | Clip, Retaining, Rinse Head Bushing | 05340-112-01-11 |
| 12 | 4 | Washer | 05330-011-42-10 |
| 13 | 2 | Bushing, Rinse Head | 05700-021-33-84 |
| 14 | 2 | Rinse Arm | 05700-031-49-58 |
| 15 | 4 | Plug | 04730-609-04-00 |
| 16 | 2 | Bearing | 03120-002-72-24 |
| 17 | 1 | Lower Wash Manifold Weldment | 05700-002-21-70 |
| 18 | 5 | Locknut, 1/4"-20 S/S Hex with Nylon Insert | 05310-374-01-00 |
| 19 | 1 | Rinse Manifold Weldment | 05700-002-01-19 |
| 20 | 2 | Bolt, Hex 3/8"-16 x 1 1/4" Long | 05305-276-10-00 |
| 21 | 1 | Wash Arm, Double Assembly | 05700-031-92-49 |
| 21 | 1 | Wash Arm, Double Assembly, 415V | 05700-002-46-86 |

460 VOLT MACHINE TRANSFORMER MOUNTING BOX



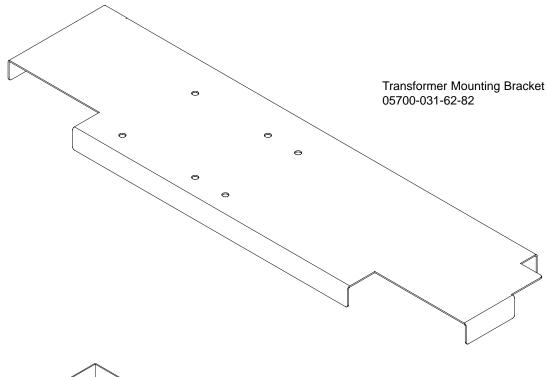


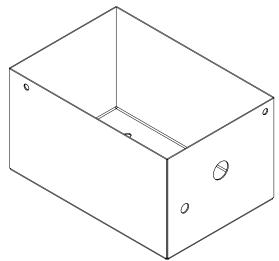




460V Transformer 05950-111-65-93

2 Amp Circuit Breaker 05925-111-64-18

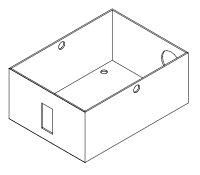


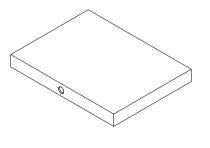


Transformer Mounting Box 05700-002-10-01

Transformer Mounting Box Top (not shown) 05700-000-78-53

SAFETY DOOR INTERLOCK/DOOR OVERRIDE INSTRUCTIONS





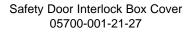
Other Safety Door Interlock (SDI) components (not shown):

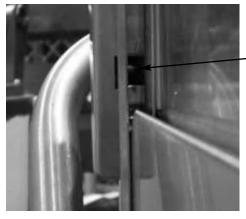
Pipe Clamp (found on the side of the machine) 05700-000-35-05

> Solenoid, Electrical Interlock Option 04810-100-61-33

Relay 05945-111-47-51

Safety Door Interlock Box Bottom 05700-001-21-26





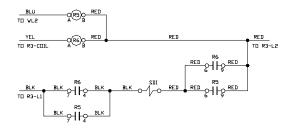
Latch access hole



The following instructions are for Tempstar HH models equipped with the Safety Door Interlock option. These instructions are to only be used in the event that the door interlock fails to unlatch and the doors are unable to be opened.

- 1. To manually disengage, find the latch access hole.
- 2. Using a screwdriver, punch or even a metal utensil, gently insert the tip into the access hole, making contact with the latching
- 3. With a minimal amount of force, push the latching arm back, disengaging the interlock.
- 4. The doors should open now.

TEMPSTAR SDI OPTION

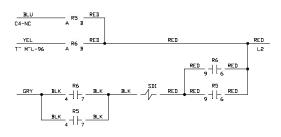


LEGEND

WASH RELAY SAFETY DOOR INTERLOCK SOLENDID

09905-002-35-85a

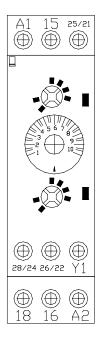
TEMPSTAR 460V SDI OPTION



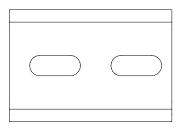
LEGEND

RINSE RELAY WASH RELAY SAFETY D R INTERL CK S LEN ID

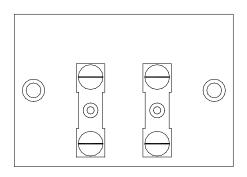
SECTION 5: PARTS SECTION EXHAUST FAN CONTROL OPTION



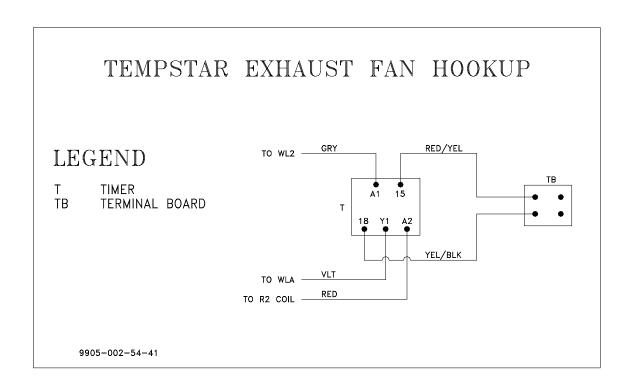
Delay Timer 05945-011-65-44



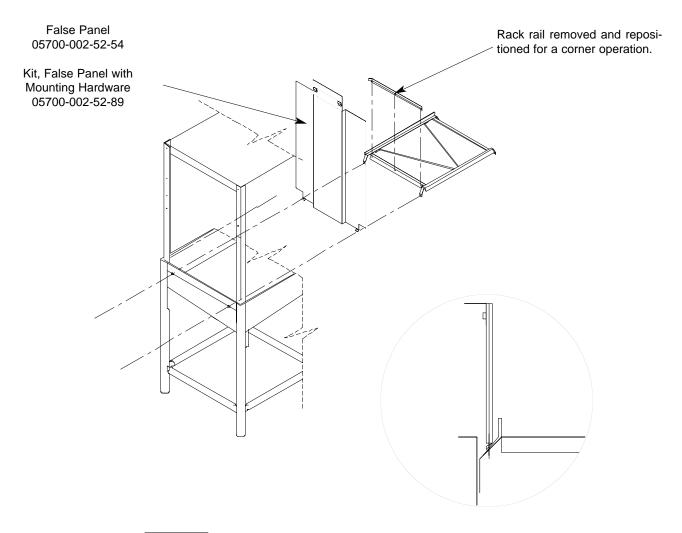
2" Din Rail 05700-002-36-09

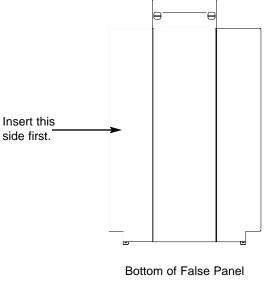


Terminal Board 05940-011-84-41



FALSE PANEL INSTALLATION

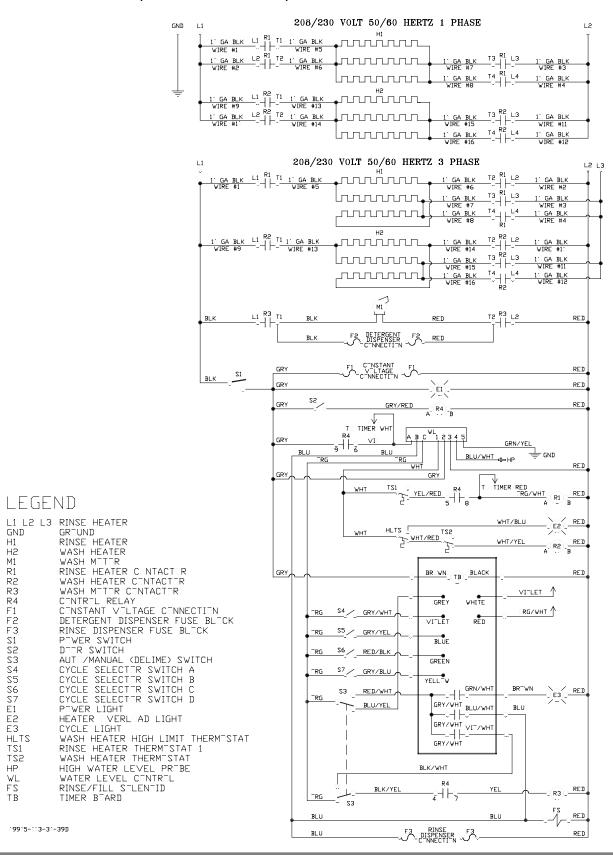




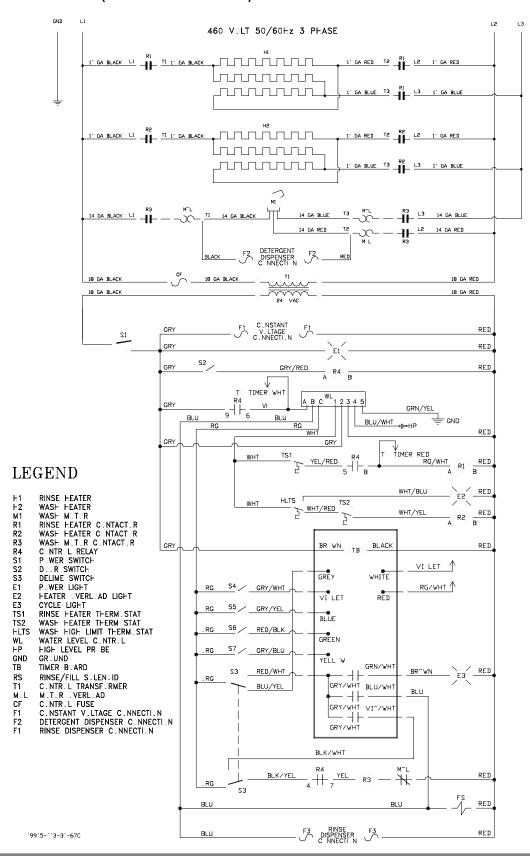
False Panel Positioned in unit.

- 1. Remove the rack assembly from the dishmachine.
- 2. The false panel will mount inside of the dishmachine.
- Position the panel in the dishmachine on the side to be closed.
- 4. Hold the panel against the side of the dishmachine and push upward.
- 5. The panel will clip in at the top, inside of the unit.
- 6. The holes in the false panel will line up with the rack assembly holes.
- 7. Re-install the screws for the rack assembly which will secure the false panel to the unit.
- 8. Re-assemble the rack track in an "L" shape for a corner operation.

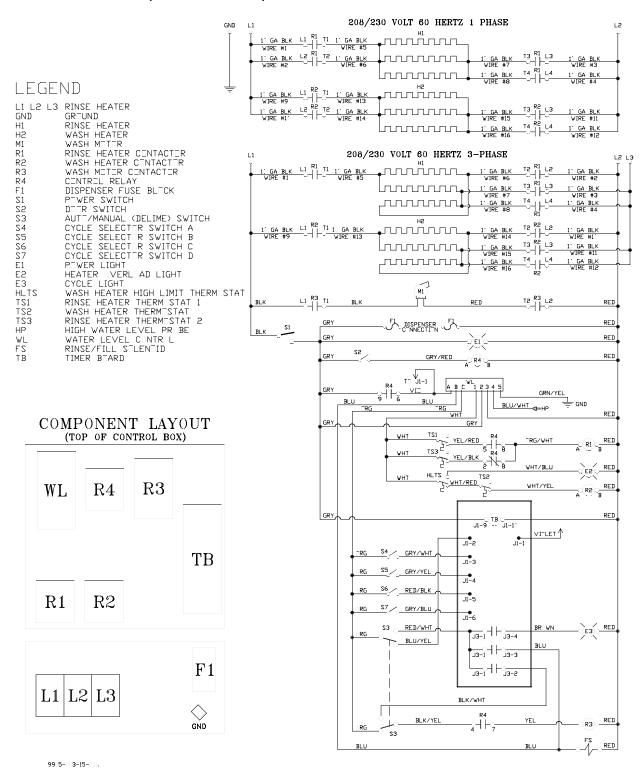
TEMPSTAR HH (TOP MOUNT CONTROLS) 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE



TEMPSTAR HH (TOP MOUNT CONTROLS) 460 VOLT - 60 HERTZ - THREE PHASE

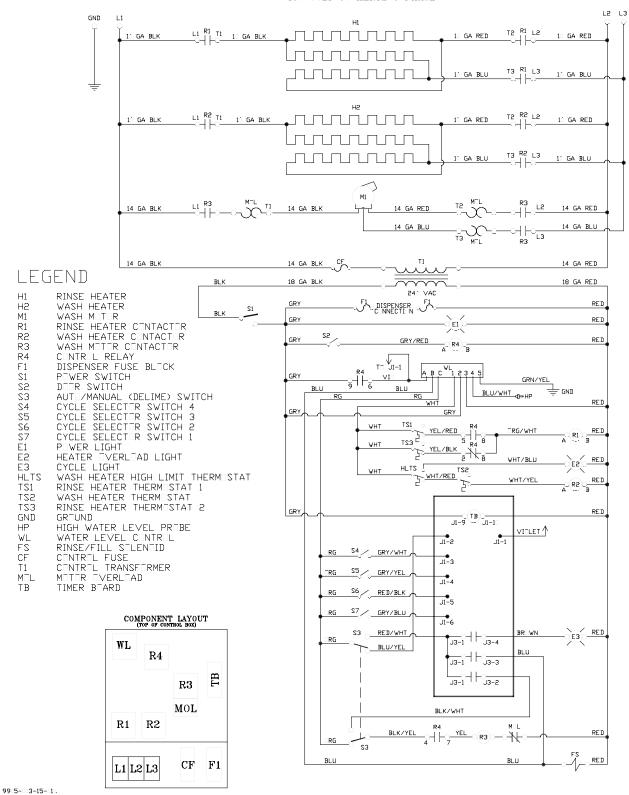


TEMPSTAR HH (UNIVERSAL TIMER) 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE



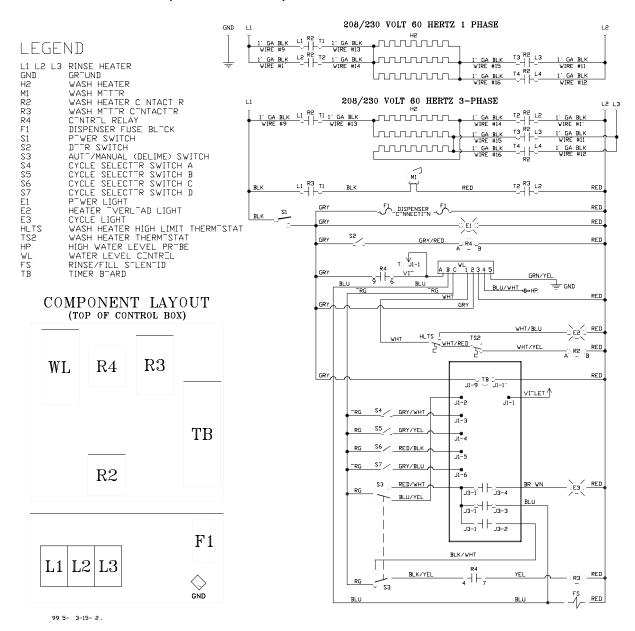
TEMPSTAR HH (UNIVERSAL TIMER) 460 VOLT - 60 HERTZ - THREE PHASE

460 VOLT 60 HERTZ 3 PHASE



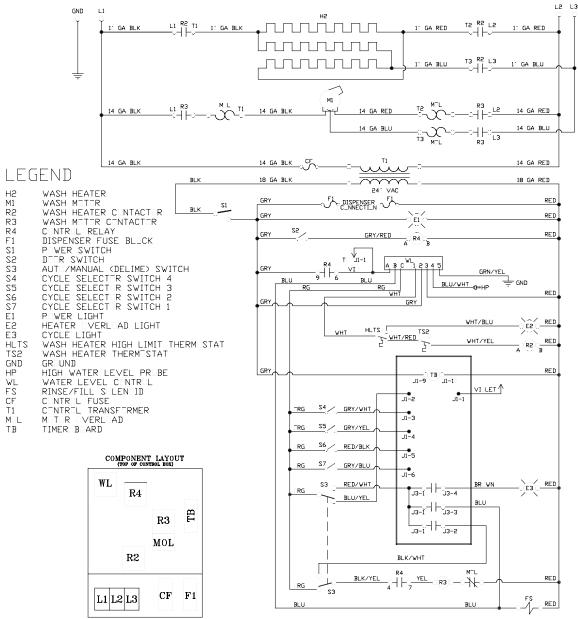
Tempstar HH Series Technical Manual 7610-002-23-32 Issued: 09/14/2007 Revised: N/A

TEMPSTAR HH NB & HH LT (UNIVERSAL TIMER) 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE



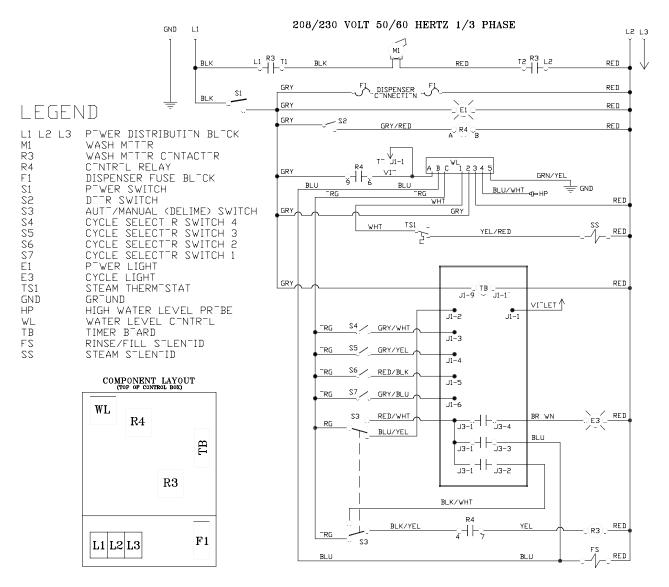
TEMPSTAR HH NB & HH LT (UNIVERSAL TIMER) 460 VOLT - 60 HERTZ - THREE PHASE





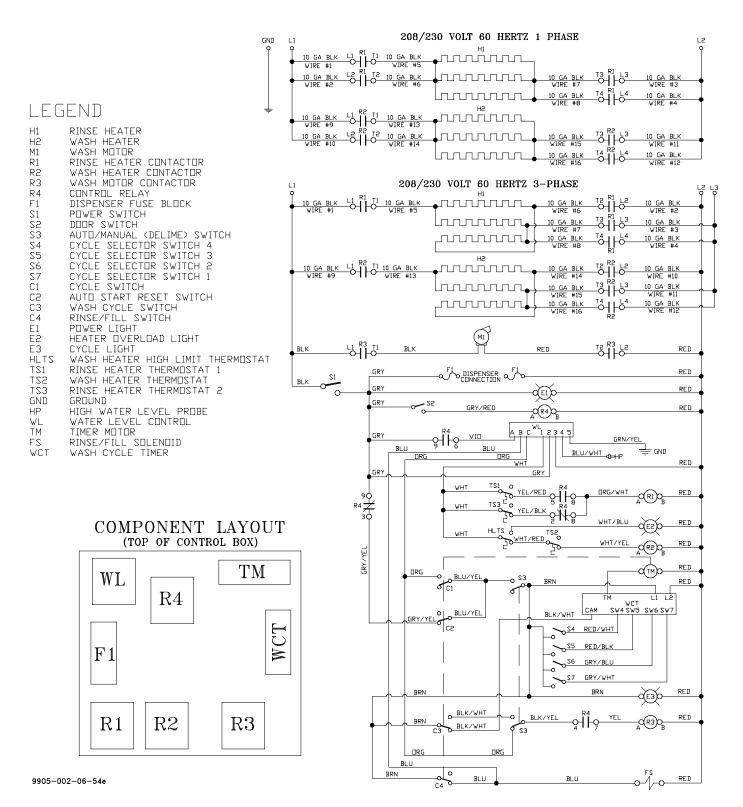
9905-003-15-03%

TEMPSTAR HH S (UNIVERSAL TIMER) 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE

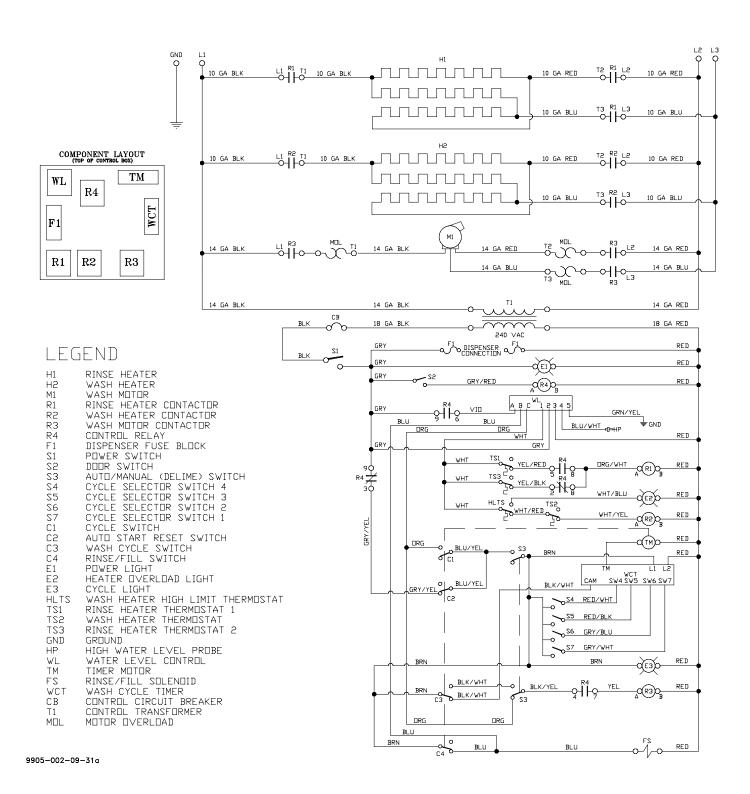


9905-003-15-045

TEMPSTAR HH 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE

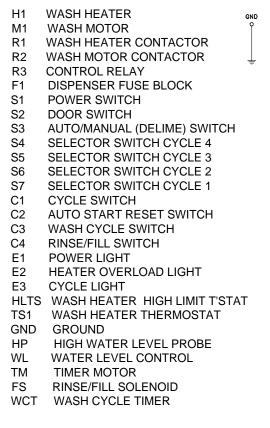


SECTION 6: ELECTRICAL SCHEMATICS TEMPSTAR HH 460 VOLT - 60 HERTZ - THREE PHASE

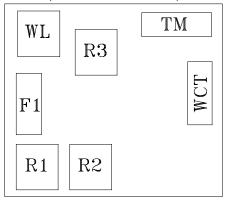


TEMPSTAR HH NB & HH LT 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE

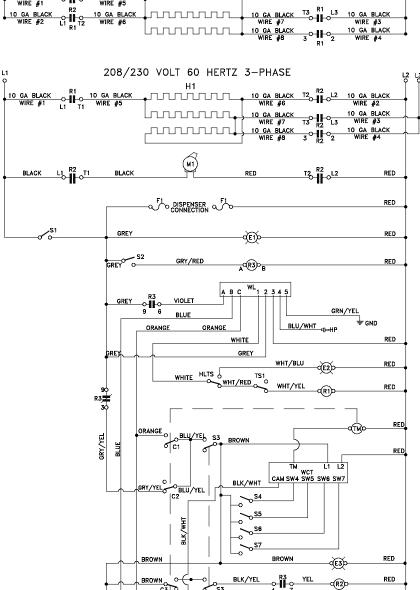
LEGEND



COMPONENT LAYOUT (TOP OF CONTROL BOX)



9905-002-19-70



208/230 VOLT 60 HERTZ SINGLE-PHASE

ORANGE

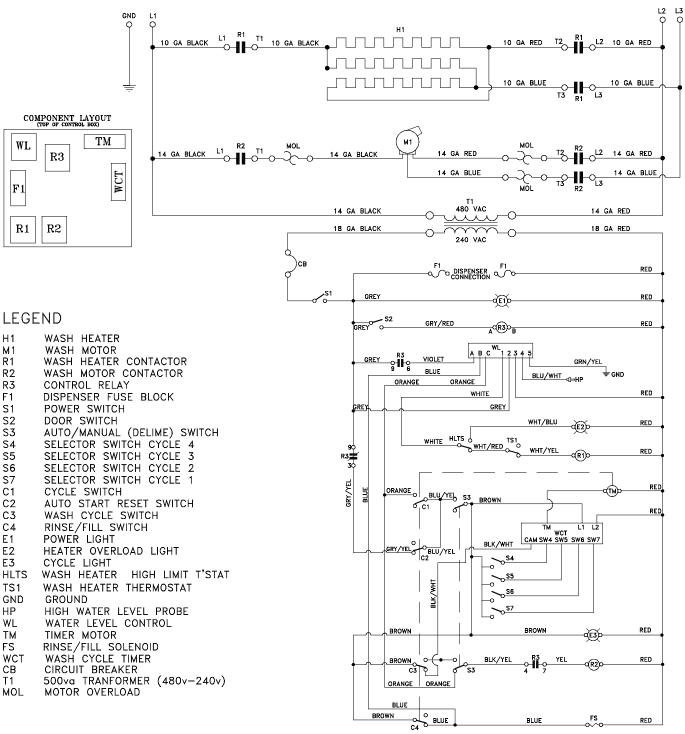
BLUE BROWN ORANGE

BLUE

FS

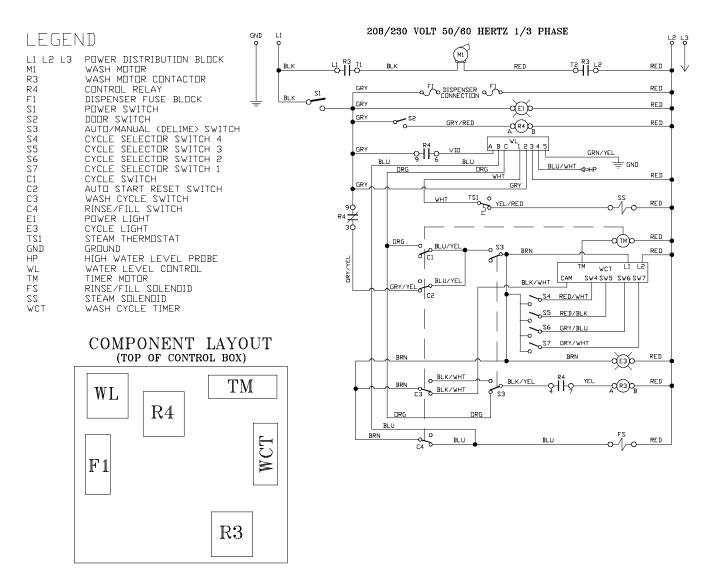
RED

TEMPSTAR HH NB & HH LT 460 VOLT - 60 HERTZ - THREE PHASE



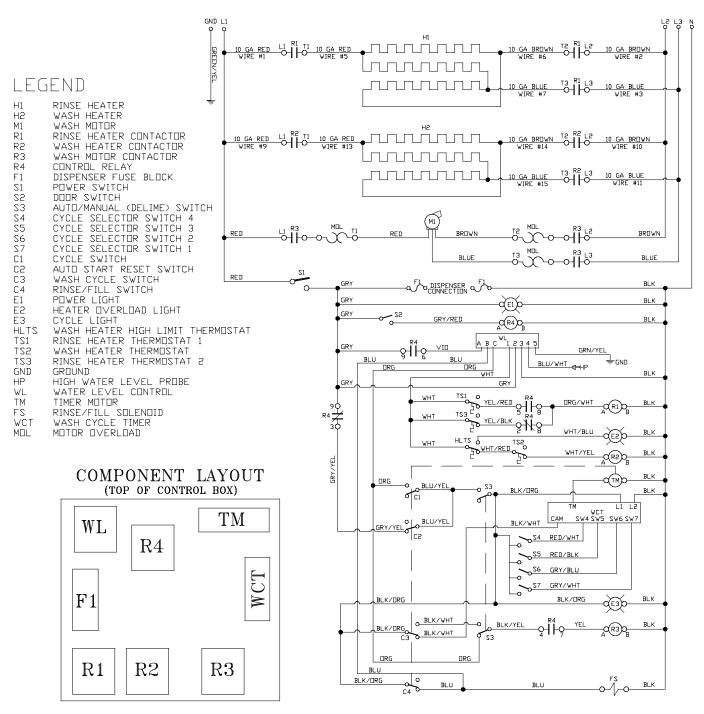
9905-002-19-69

TEMPSTAR HH S 208-230 VOLT - 60 HERTZ - SINGLE & THREE PHASE



9905-002-74-92a

SECTION 6: ELECTRICAL SCHEMATICS TEMPSTAR HH 415 VOLT - 50 HERTZ - THREE PHASE



09905-002-32-44C

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