

INSTALLATION, OPERATION, AND SERVICE MANUAL

**INSTALLATION MANUAL FOR EXPORT UNITS
SERVICE MANUAL FOR DOMESTIC UNITS**

ELECTRICALLY HEATED MODELS:

NOBLE HT-180 HH

NOBLE HT-180 HH

with VENTLESS and ENERGY RECOVERY



[illegible]



NOBLE HT-180 HH

Door-type dishmachine; electrically-heated, high-temp, hot-water sanitizing, with booster heater.

NOBLE HT-180 HH with VENTLESS AND ENERGY RECOVERY

Door-type dishmachine; electrically-heated, high-temp, hot-water sanitizing,
with booster heater and ventless heat recovery system.

Model:_____

Serial No.:_____

Installation Date:_____

Service Rep. Name:_____

Phone Number:_____

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SPECIFICATIONS

OPERATING CAPACITIES

OPERATING CAPACITY HT-180 HH:

Selection A

Racks per Hour	53
Dishes per Hour	1325
Glasses per Hour	1908

Selection B

Racks per Hour	29
Dishes per Hour	725
Glasses per Hour	1044

Selection C

Racks per Hour	20
Dishes per Hour	500
Glasses per Hour	720

Selection D

Racks per Hour	12
Dishes per Hour	300
Glasses per Hour	432

OPERATING CYCLE (SECONDS):

Minimum (other cycle times are available)

Wash Time	45
Rinse Time	15
Total Cycle Time	60

Ventless

Wash Time	45
Rinse Time	15
Dwell Time	2
Condensate Removal	30
Total Cycle Time	92

Tank Capacity:

Rinse Tank (gallons)	3.0
Rinse Tank (liters)	11.4
Wash Tank (gallons)	8.0
Wash Tank (liters)	30.3

ELECTRICAL REQUIREMENTS:

Wash Motor HP	2.0
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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 is subject to change without notice.

WATER REQUIREMENTS:

NOBLE HH & NOBLE HH Ventless:

Wash Temperature (minimum) (°F)	150
Wash Temperature (minimum) (°C)	66
Rinse Temperature (minimum) (°F)	180
Rinse Temperature (minimum) (°C)	83
Inlet Water Temperature:	
12kW Rinse Heater (°F)	140
12kW Rinse Heater (°C)	60
14kW Rinse Heater (°F)	110
14kW Rinse Heater (°C)	44
14KW Ventless (°F)	40-70
14KW Ventless (°C)	4.4-21
Flow Pressure (PSI)	20±5
Water Line Size (NPT)	
3/4"	
Drain Line Size (NPT)	
1 1/2"	

SPECIFICATIONS

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.

NOBLE HT-180 HH:

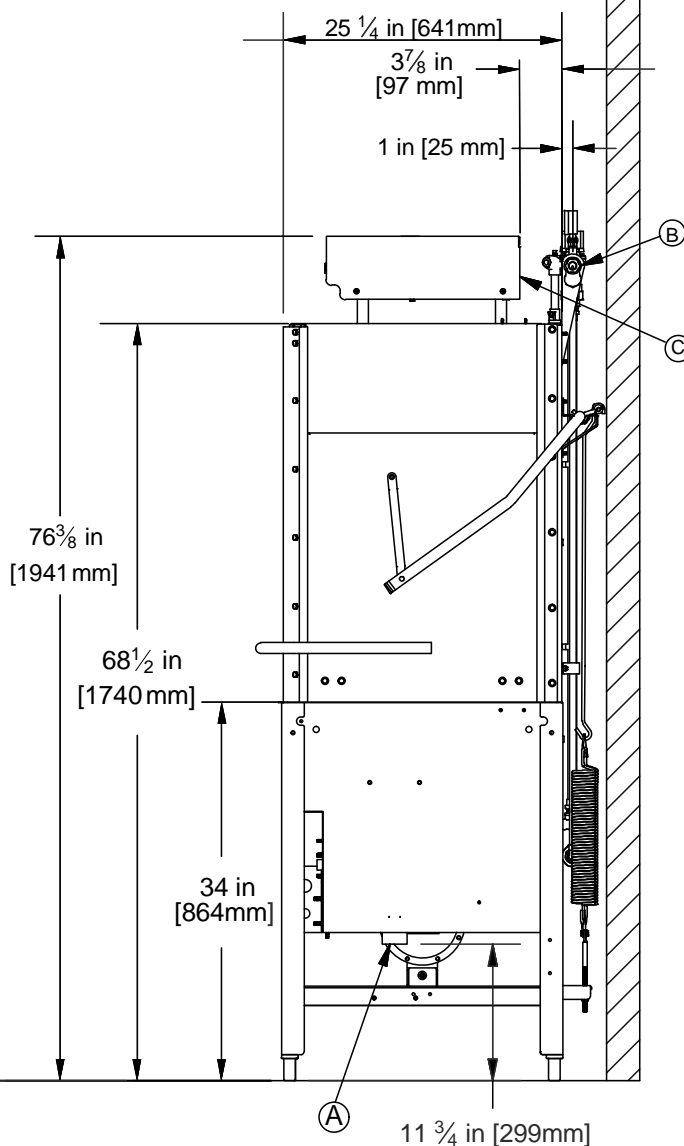
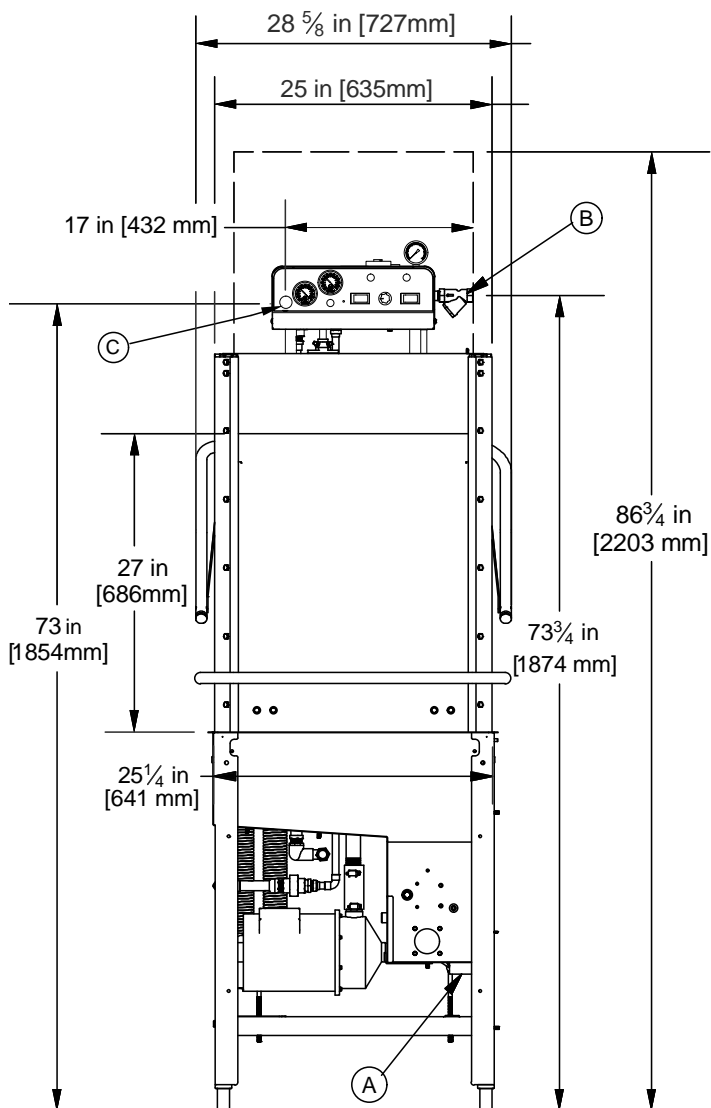
Volts	Phase	Freq	Rinse Heater Ratings	Total Amps	Typical Electrical Circuit
415	3	60	12kW	28A	35AMP
415	3	60	14kW	30A	40AMP
208	1	60	12kW@240V	75A	100AMP
208	1	60	12kW@240V	82A	110AMP
230	1	60	12kW@240V	81A	110AMP
230	1	60	14kW@240V	90A	125AMP
208	3	60	12kW@240V	48A	60AMP
208	3	60	14kW@240V	52A	70AMP
230	3	60	12kW@240V	52A	70AMP
230	3	60	14kW@240V	57A	80AMP
460	3	60	12kW@480V	24A	30AMP
460	3	60	14kW@480V	26A	35AMP

NOBLE HT-180 HH VENTLESS:

Volts	Phase	Freq	Rinse Heater Ratings	Total Amps	Typical Electrical Circuit
208	1	60	15.4kW	87A	110AMP
230	1	60	15.4kW	96A	125AMP
208	3	60	15.4kW	55A	70AMP
230	3	60	15.4kW	61A	80AMP
460	3	60	15.4kW	28A	35AMP

DIMENSIONS (TOP MOUNT CONTROL BOX) Y-STRAINER OPTION

A - Drain 1 1/2" NPTF
B - Water Inlet 3/4" NPTF
C - Electrical Connection



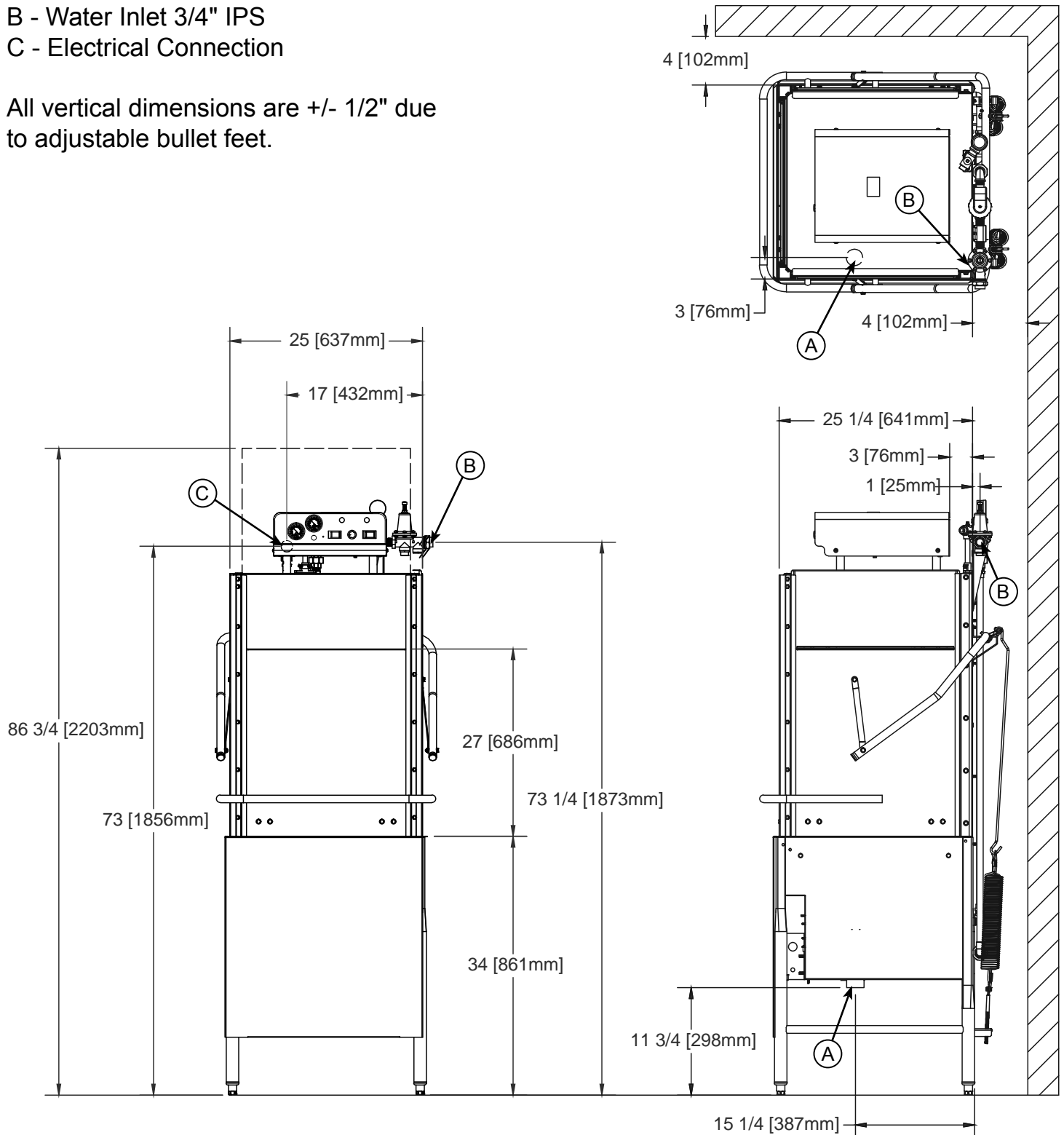
SPECIFICATIONS

DIMENSIONS (TOP MOUNT CONTROL BOX) PRESSURE REGULATOR OPTION

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.



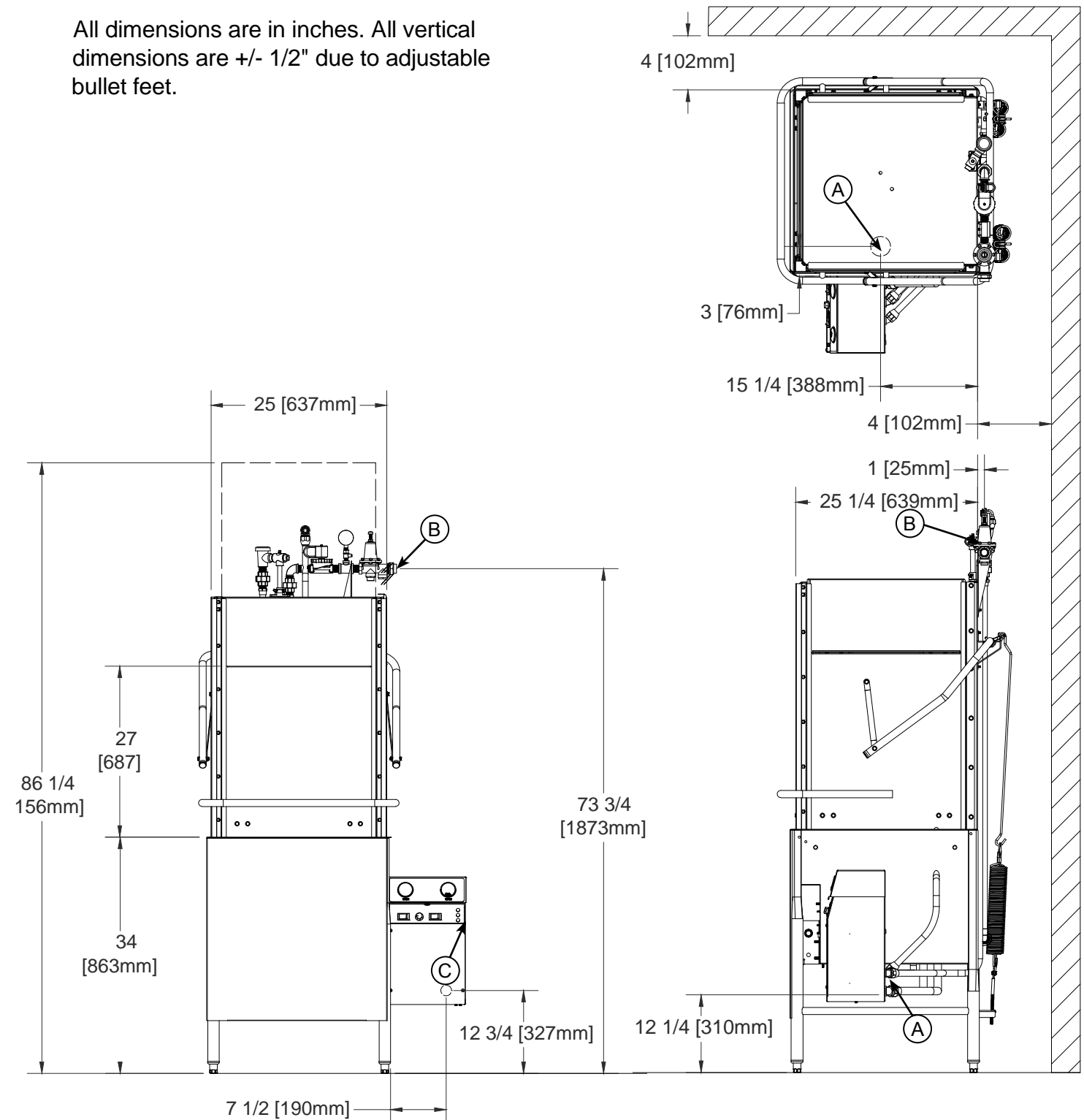
SPECIFICATIONS

DIMENSIONS (SIDE MOUNT CONTROL BOX)

LEGEND

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

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



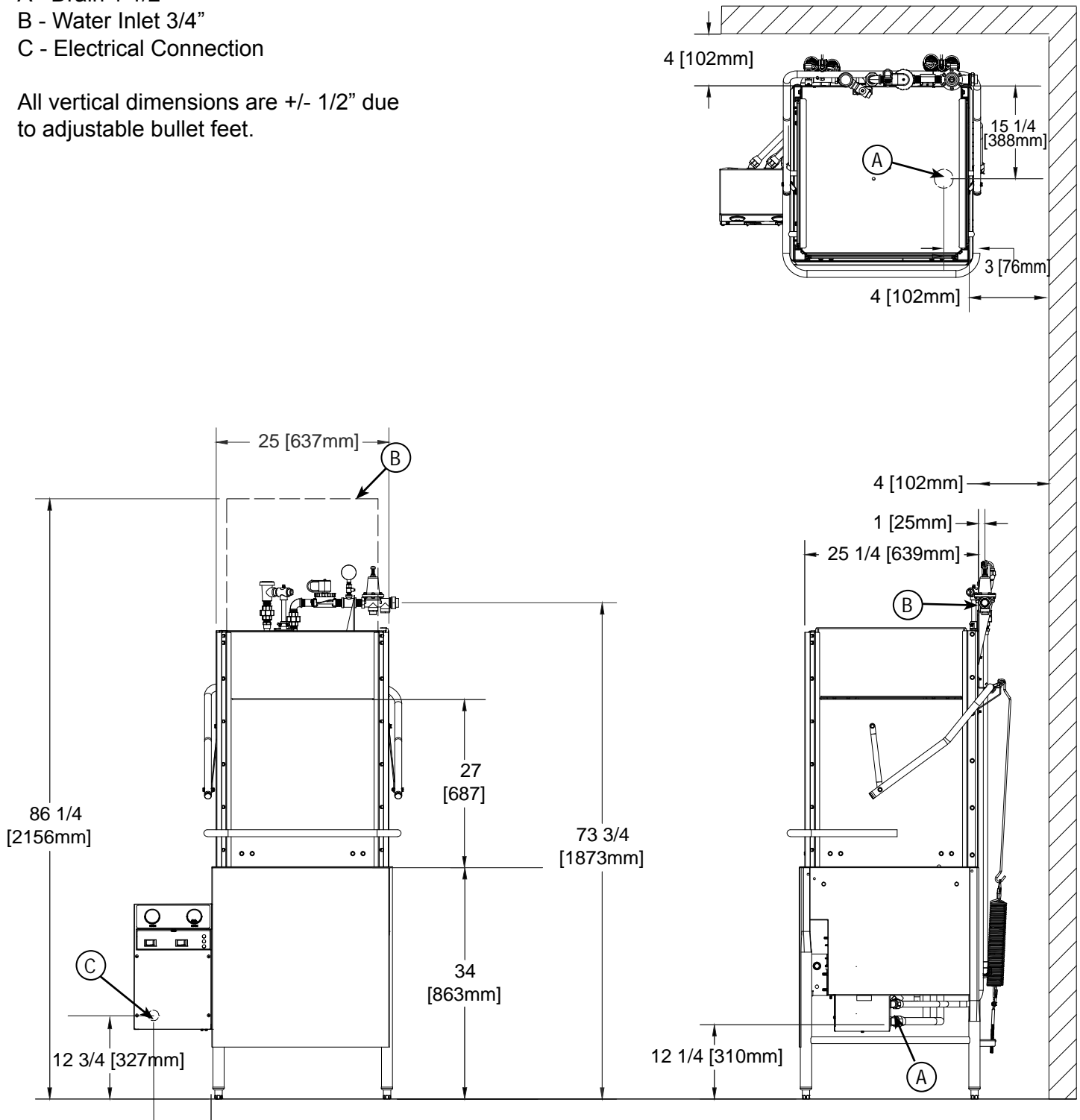
SPECIFICATIONS

DIMENSIONS (LEFT SIDE CONTROL BOX)

LEGEND

- A - Drain 1 1/2"
- B - Water Inlet 3/4"
- C - Electrical Connection

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



SPECIFICATIONS

DIMENSIONS (VENTLESS HEAT RECOVERY)

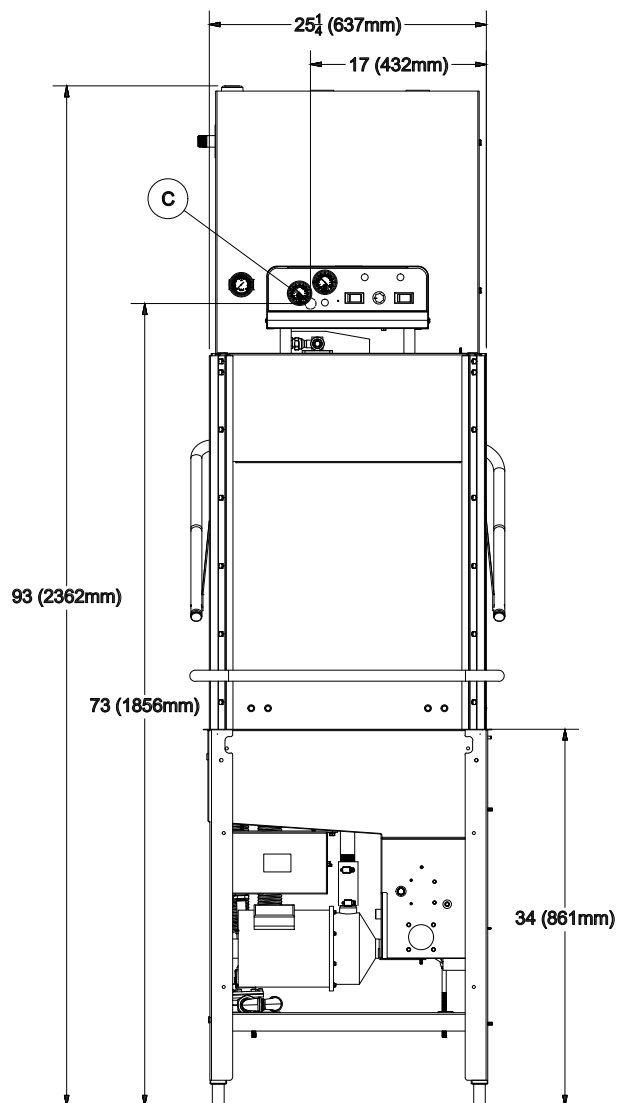
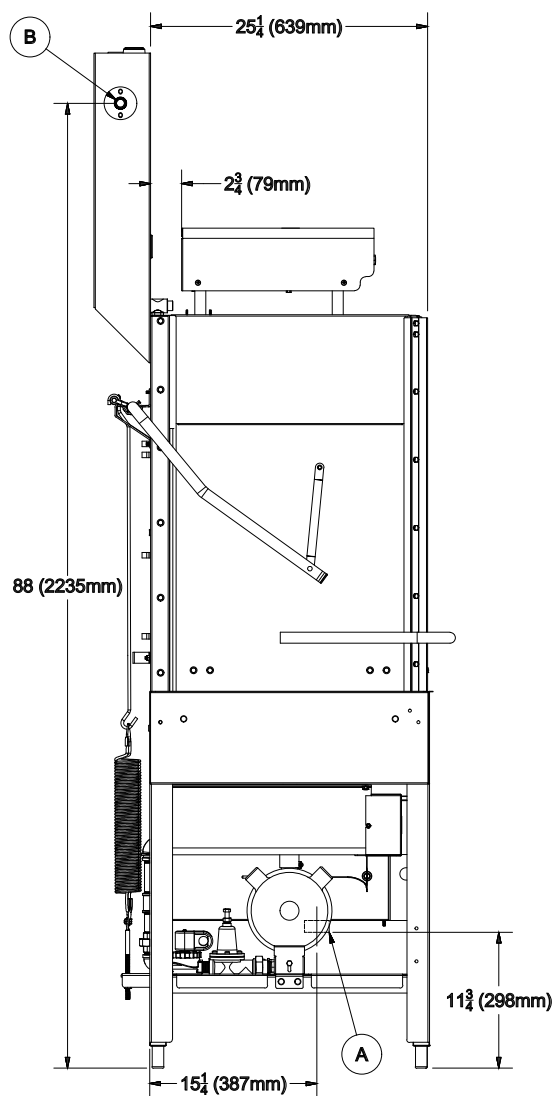
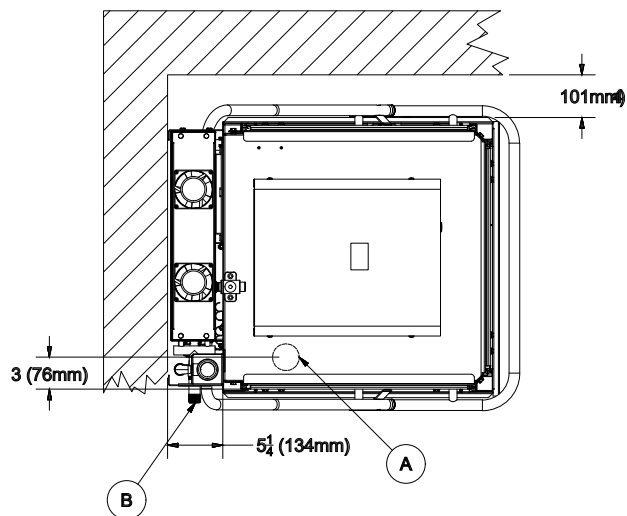
LEGEND

A) DRAIN $\frac{1}{2}$ IPS

B) WATER INLET $\frac{3}{4}$ MIP

C) ELECTRICAL CONNECTIONS

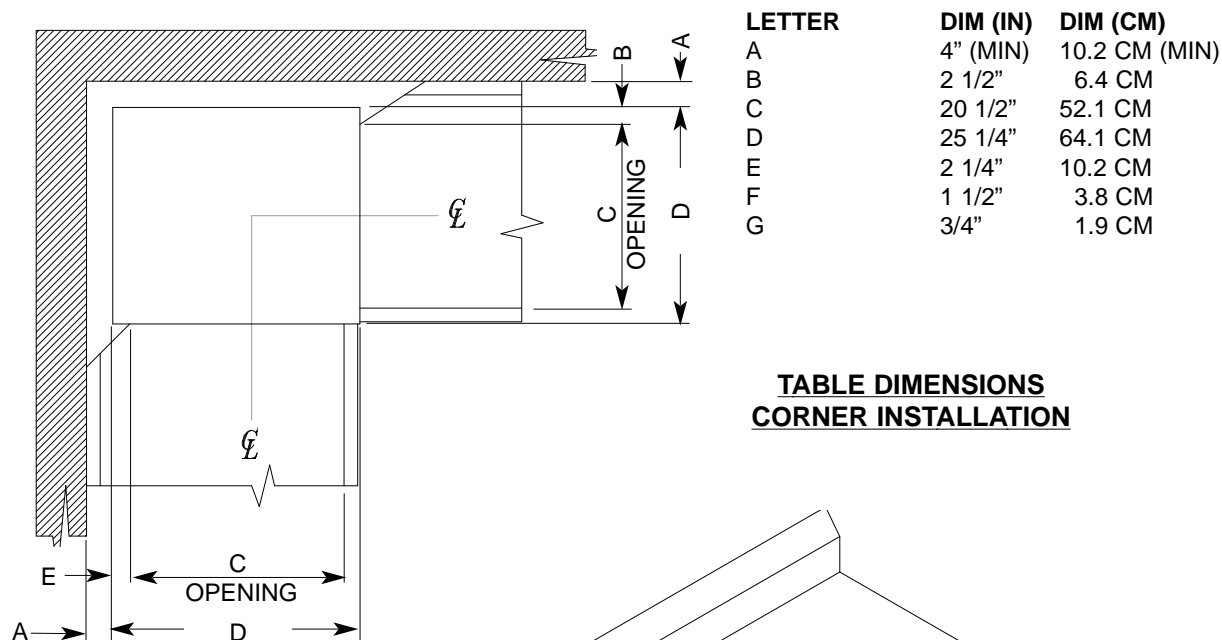
All vertical dimensions are $\pm 1/2"$ due to adjustable bullet feet



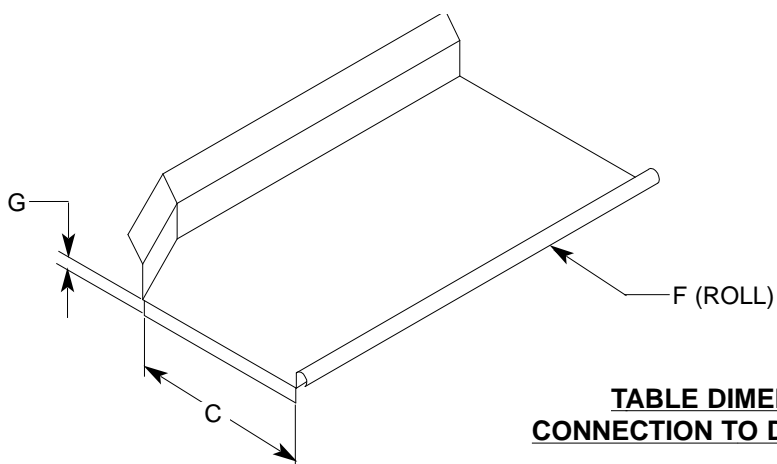
SPECIFICATIONS

TABLE DIMENSIONS

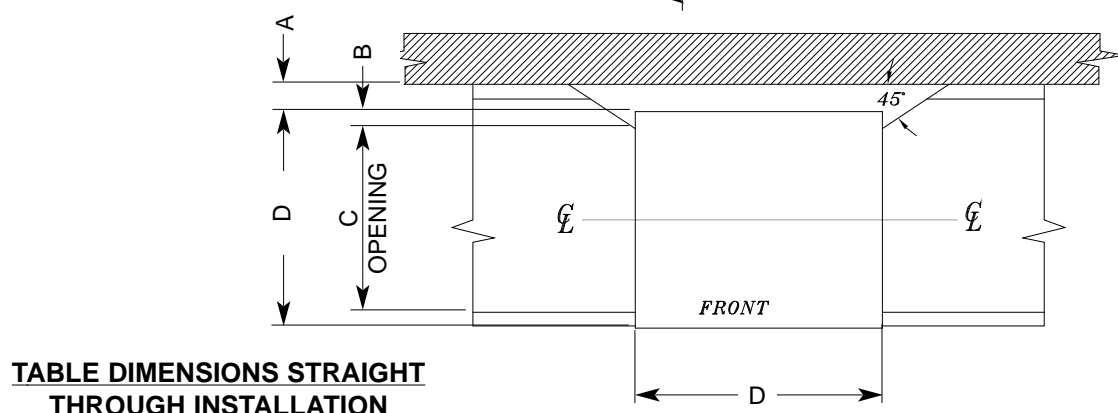
NOTE: Please remove the front dress panel from the dishmachine if mounting dishmachine for a corner installation and attaching side tables. Corner installation will trap panel making it difficult to remove.



**TABLE DIMENSIONS
CORNER INSTALLATION**



**TABLE DIMENSIONS
CONNECTION TO DISHMACHINE**



**TABLE DIMENSIONS STRAIGHT
THROUGH INSTALLATION**

SPECIFICATIONS

INSTALLATION INSTRUCTIONS

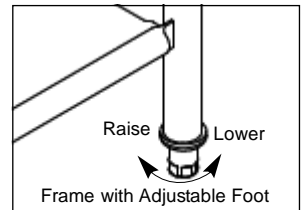
VISUAL INSPECTION: Before installing unit check container and machine for damage. A damaged container may be an indication of damage to the machine. If there is any type of damage to both container and unit, do not throw away the container. The dishmachine has been inspected at the factory prior to shipping and is expected to arrive in new, undamaged condition. However, rough handling by carriers or others may result in damage to the unit while it is in transit. If such a situation occurs, do not return the unit to the manufacturer. Instead, contact the carrier and ask them to send a representative to the site to inspect the damage, and request that an inspection report be completed.

Contact the carrier within 48 hours of receiving the machine (to report possible freight damage) and the dealer from whom the unit was purchased.

UNPACKING THE DISHMACHINE: The machine should be unboxed and removed from the pallet prior to installing. Open the front door and remove all of the materials from the inside. Once unpacked, verify there are no missing parts. If a part is missing, contact manufacturer immediately.

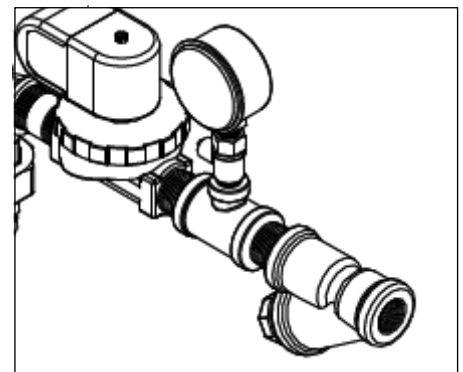
LEVEL THE DISHMACHINE: The dishmachine is designed to operate while level. This is important to prevent any damage to the machine during operation and to ensure the best results possible. The unit comes equipped with adjustable bullet feet which can be turned using a pair of pliers. Verify the unit is level from front to back and side to side before making any electrical or plumbing connections.

PLUMBING THE DISHMACHINE: All plumbing connections must be made to adhere to local, state, territorial and national codes. The installing plumber is responsible for ensuring the incoming water lines are flushed of debris prior to connecting to the machine. Note that chips and materials from cutting processes can become lodged in the solenoid valves and prevent them from opening or closing. Any valves that are found to be fouled or defective because of foreign matter left in the water line, and any subsequent water damage, are not the responsibility of the manufacturer.



A water hardness test must be performed to determine if the HTS-11 (scale prevention & corrosion control) needs to be installed. A hardness test kit can be found on the warning tag that is attached to the incoming plumbing connection on the back of the machine. If water hardness is higher than 5 GPG, the HTS-11 will need to be installed. Please contact manufacturer to purchase the HTS-11.

CONNECTING THE DRAIN LINE: The dishmachine's 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.



Incoming Plumbing Y-strainer Connection

WATER SUPPLY CONNECTION: Read the section entitled "PLUMBING THE DISHMACHINE" before proceeding. Install the water supply line (3/4" pipe size minimum, 1/2" pipe size minimum for LT) 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.

INSTALLATION & OPERATION

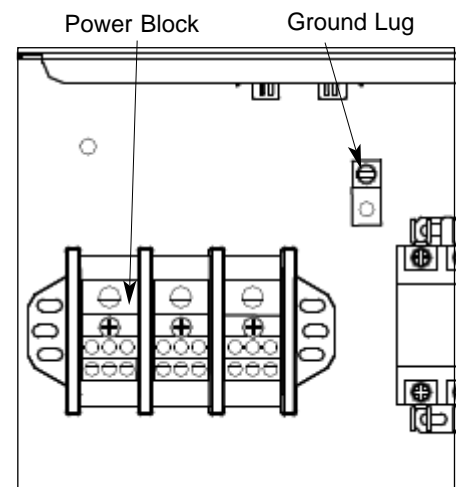
INSTALLATION INSTRUCTIONS

The water supply line is to be capable of 20±5 PSI “flow” pressure at the recommended temperature indicated on the data plate. Take care not to confuse static pressure with flow pressure: Static pressure is line pressure in a “no flow” condition (all valves and services are closed); flow pressure is the pressure in the fill line when the valve is opened during the cycle. It is suggested that a shock absorber (not supplied) be installed on the incoming water line. This prevents water hammer (hydraulic shock)—induced by the solenoid valve as it operates—from causing damage to the equipment.

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.

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.



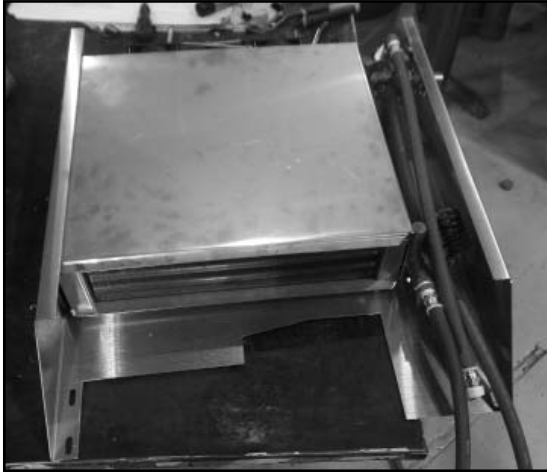
Incoming Power Connection

INSTALLATION & OPERATION

VENTLESS HEAT RECOVERY MOUNTING INSTRUCTIONS

Due to shipping constraints the NOBLE HT-180 High Hood is shipped disassembled, you should receive two pieces.

① Heat Recovery Unit



② Base Unit



The heat recovery unit box is located inside the dishmachine shipping box.

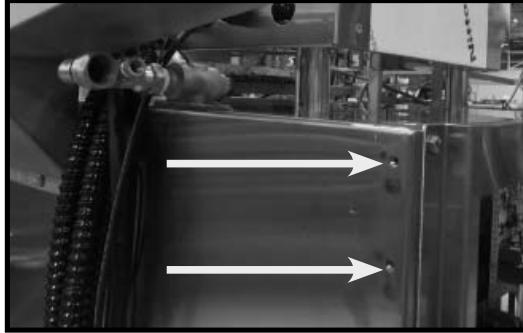
Fully Assembled Unit



INSTALLATION & OPERATION

VENTLESS HEAT RECOVERY MOUNTING INSTRUCTIONS

- 1 Locate and remove the four 1/4-20 bolts using a 7/16 wrench. These are located in top left and right corner of the unit.



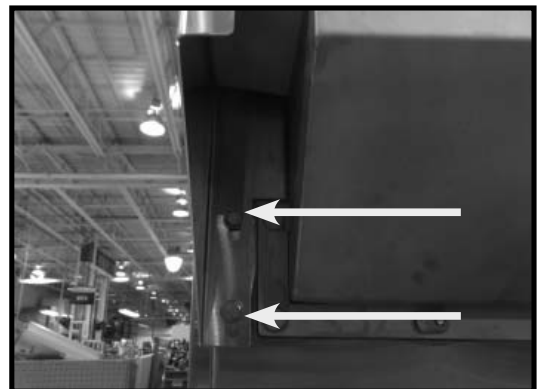
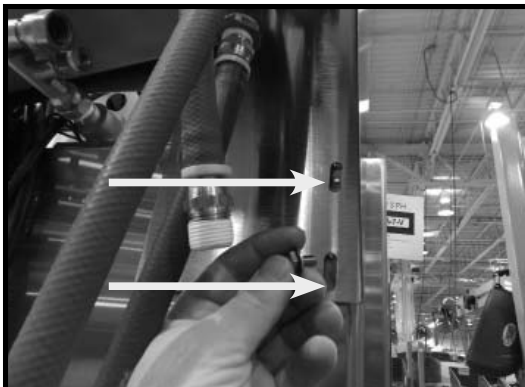
- 2 Lift the heat recovery unit up and over the lower air inlet, then align and slide unit onto the lower air inlet. Upper unit should slide inside the lower air inlet at the seam.



Lower Air Inlet Seam Heat Recovery Unit



- 3 Reinstall the four 1/4-20 bolts that were removed in step 1 with a 7/16 wrench. They insert into the machine on the right and left corners.



INSTALLATION & OPERATION

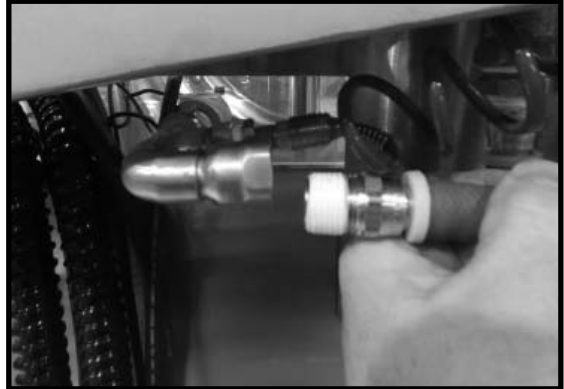
VENTLESS HEAT RECOVERY MOUNTING INSTRUCTIONS

- ④ Connect pressure gauge with a 9/16 wrench. Connect the two hoses using an adjustable wrench. The hoses are cut to length and will only reach their intended connection point.

A. Connect the Gauge



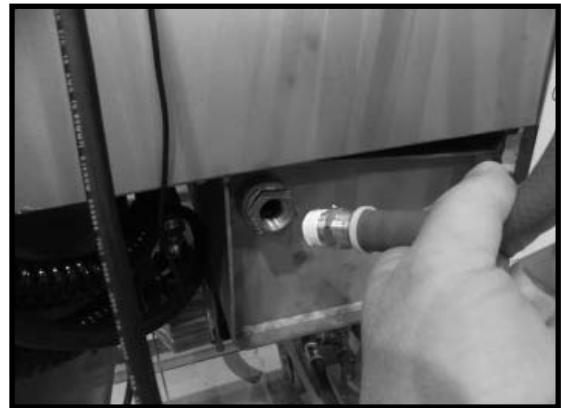
B. Final Rinse Inlet



C. PRV Inlet from Coil



D. Booster Outlet



Before moving to the next step, tidy up the hoses by sliding them under the clamps. You may need to loosen the nut to accomplish this.



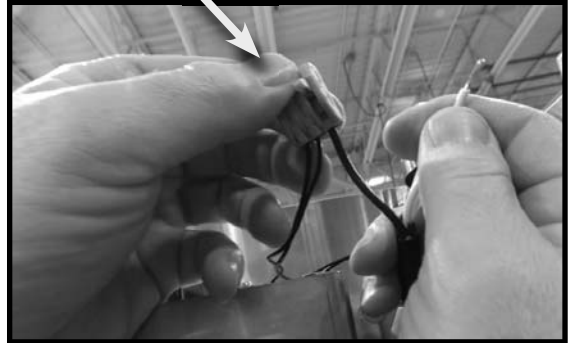
INSTALLATION & OPERATION

VENTLESS HEAT RECOVERY MOUNTING INSTRUCTIONS

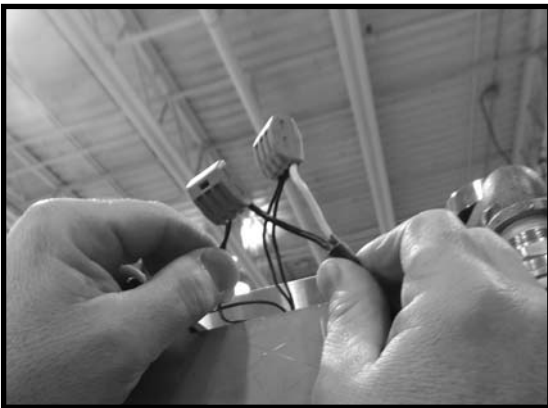
- 5 Locate the wire connectors at the top of the unit and connect the white and black wires from the base unit.



Slide wire into the hole and push the lever down



Tidy up the wires and lock them in place with the P-Clamp on the top of the unit.



P-Clamp



Now you have a fully assembled unit.



INSTALLATION & OPERATION

OPERATING INSTRUCTIONS

The Conservor XL-E Series CAM timer is a 1 minute, 30 second, 8-CAM timer (**CAM 8 is a spare**) that controls the operation of the dishmachine. The following is a description of the set points for each CAM and the function of each switch.

CAM 1 is a cut CAM with a single notch that serves as the cycle/reset control.

FUNCTION: When the machine is in the operation mode the notch is in the home position. The machine will remain idle until the door is opened, then CAM 1 moves to the start position and holds until the door is closed. The closing of the door will start the next cycle. The CAM will rotate a complete cycle and return to the home position and hold.

CAM 2 is a cut CAM that provides the wash cycle timing.

FUNCTION: The wash CAM works off the normally open contacts of CAM 2. This requires the microswitch be held closed by the CAM. It will close and energize the wash pump 2 seconds after the cycle switch is activated. The pump will operate through the wash cycle (40 seconds) then shut down for the dwell period (20 seconds). As the CAM rotates it energizes the pump for the rinse cycle (25 seconds). When CAM 1 reaches its home position it will de-energize CAM 2, shutting down the wash pump.

NOTE: The last 6 CAMS are adjustable. The following instructions will require that the timer position have the CAMs to the front and the motor to the left.

CAM 3 is an adjustable CAM that controls the drain valve.

FUNCTION: The drain solenoid works off the normally closed contacts of CAM 3. When the cycle is initiated, the microswitch will be held open until it is allowed to drop into the notch of the CAM. This energizes the drain solenoid which then drains the machine. After a 12 second delay the CAM reverses the microswitch, de-energizing the drain solenoid. This CAM may require adjusting due to varying water pressure. The drain solenoid must remain open long enough to remove whatever water the fill valve solenoid allows in the machine. This could vary due to the water supply line pressure.

SETTINGS: The right side of CAM 3 must be set to pick up the microswitch just before the wash/rinse cycle CAM switch drops. It will hold the drain solenoid open to drain all the water in the tank from the unit during the dwell period. Any adjustment made to the drain should be made to the left side of CAM 3. The CAM must be moved back into the wash time until all of the water is drained from the machine.

CAM 4 is an adjustable CAM that controls the fill valve and the amount of water used.

FUNCTION: The fill valve CAM works off the normally closed contacts of CAM 4. This requires the microswitch to be held open by the CAM and allowed to drop into the notch to operate the fill valve. This energizes the fill solenoid which opens to start filling the machine with fresh water. After a 10 second delay the CAM reverses the microswitch, de-energizing the fill solenoid. The fill CAM may require adjustment due to varying water pressure. The fill solenoid must remain open a sufficient length of time to fill the machine to the correct level.

SETTINGS: The right side of CAM 4 must be set to allow the microswitch to drop 2 seconds before the drain solenoid is de-energized to ensure the detergent residue is flushed from the unit. It will hold the fill solenoid open until the CAM switch arm is raised. At that time the fill solenoid is de-energized, shutting off the incoming water. The tub will be filled to the correct level. Any adjustment made to the timing of the fill solenoid should be made with the left side of CAM 4. To

SHUTDOWN AND CLEANING: 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 door. 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. Dispose of any soil and debris found in the strainer. 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 door.

WATER CONSUMPTION ISSUES AND EFFICIENCY: The models covered in this manual provide 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.

INSTALLATION & OPERATION

DETERGENT CONTROL

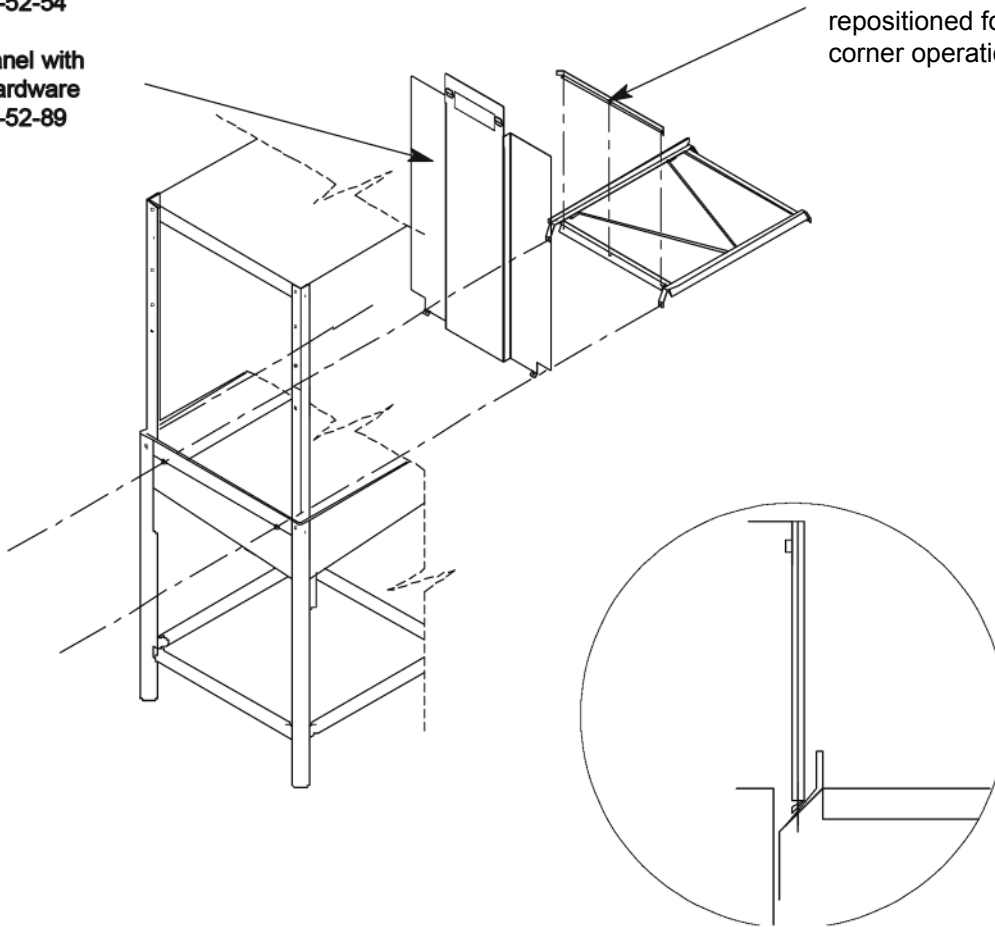
DETERGENT CONTROL: Detergent usage and water hardness are two factors that contribute greatly to how efficiently this dishmachine will operate. Using detergent in the proper amount can become a source of substantial savings. A qualified water treatment specialist can relate what is needed for maximum efficiency from the detergent.

1. Hard water greatly affects the performance of the dishmachine, causing the amount of detergent required for washing to increase. If the machine is installed in an area with hard water, the manufacturer recommends the installation of water treatment equipment.
2. Deposited solids from hard water can cause spotting that will not be removed with a drying agent. Treated water will reduce this occurrence.
3. Treated water may not be suitable for use in other areas of operation and it may be necessary to install a water treatment unit for the water going to the dishmachine only. Discuss this option with a qualified water treatment specialist.
4. Dishmachine operators should be properly trained in how much detergent is to be used per cycle. Meet with a water treatment specialist and detergent vendor to discuss a complete training program for operators.
5. Certain dishmachine models require that chemicals be provided for proper operation and sanitization. Some models may require the installation of third-party chemical feeders to introduce those chemicals to the machine. The manufacturer does not recommend or endorse any brand name of chemicals or chemical dispensing equipment. Contact a chemical distributor for questions.
6. Some dishmachines come equipped with integral solid detergent dispensers. These dispensers are designed to accommodate detergents in a certain-sized container. If applicable, relate this to a chemical distributor upon first contacting them.
7. Water temperature is an important factor in ensuring that the dishmachine functions properly, and the machine's data plate details what the minimum temperatures must be for the incoming water supply, the wash tank and the rinse tank. If minimum requirements are not met, there is a possibility that dishes will not be clean or sanitized.
8. Instruct dishmachine operators to observe the required temperatures and to report when they fall below the minimum allowed. A loss of temperature can indicate a larger problem—such as a failed heater—or could indicate that the hot water heater for the operation is not up to capacity and a larger one may need to be installed.

False Panel
05700-002-52-54

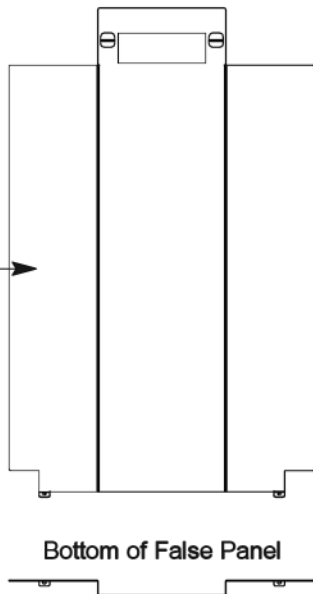
Kit, False Panel with
Mounting Hardware
05700-002-52-89

Rack rail removed and
repositioned for a
corner operation.



False panel positioned in unit

Insert this
side first.



Bottom of False Panel

1. Remove the rack assembly from the dishmachine.
2. The false panel will mount inside of the dishmachine.
3. 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. Reinstall the screws for the rack assembly which will secure the false panel to the unit.
8. Reassemble the rack track in an "L" shape for a corner operation.

PREVENTATIVE MAINTENANCE

Noble Warewashing 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. By following the operating and cleaning instructions in this manual, users should get the most efficient results from the dishmachine.

Steps to ensure that the dishmachine is used properly:

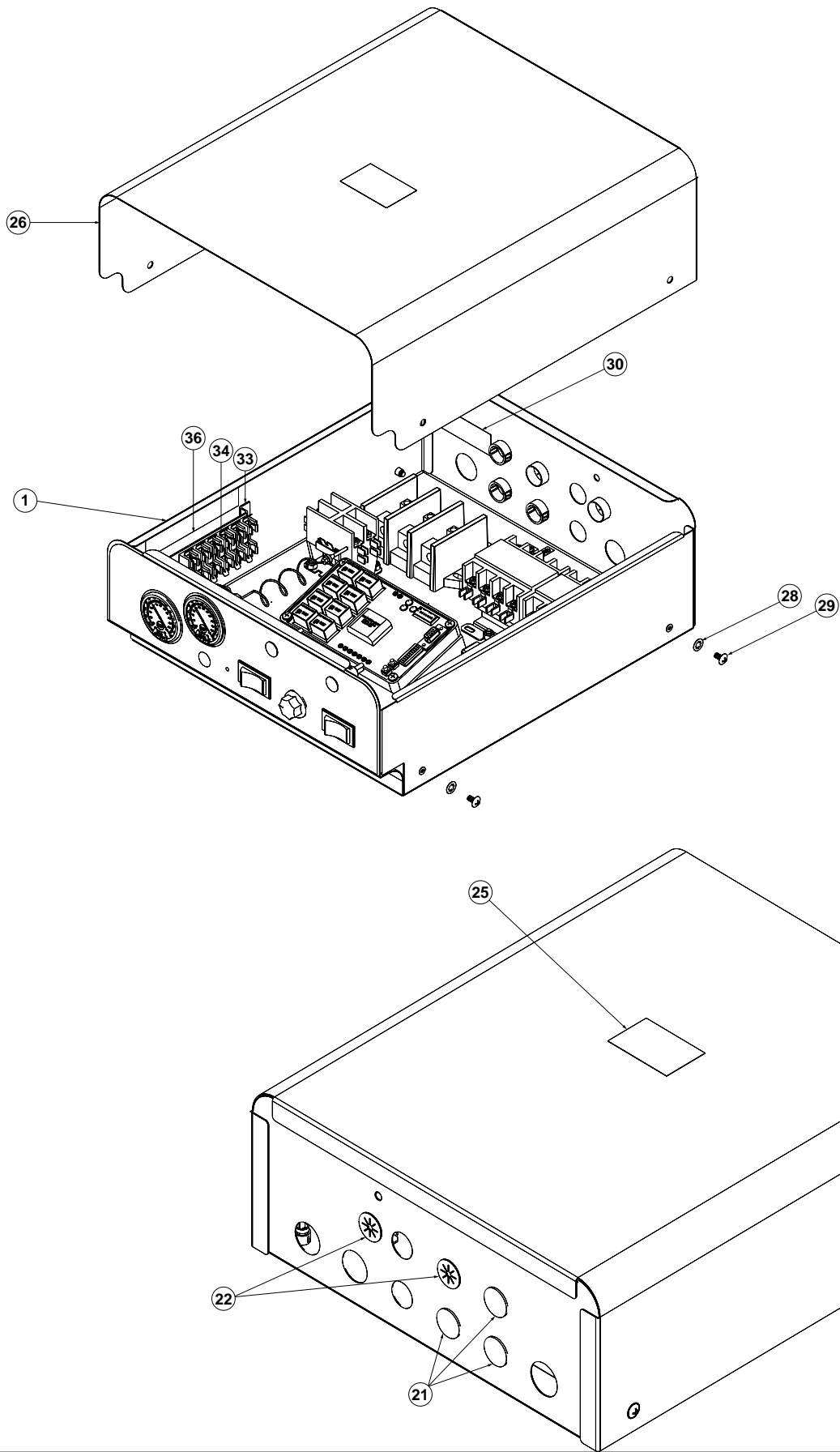
1. Ensure that the water temperatures match those listed on the machine data plate (on the front left of machine).
2. Remove as much soil as possible from dishes before loading into racks.
3. Ensure that all strainers are in place, laying flat in tub and free of soil and debris before operating the machine. To clean strainers, wipe them out with a rag and rinse under a faucet. For stubborn debris, a toothpick can be used to dislodge any obstructions from the perforations. Do not beat strainers on waste cans; once bent they will not work properly.
4. If hard water is present, install an HTS-11 into the water line connecting to the dishmachine (see section "Plumbing the Dishmachine").
5. Ensure that all wash and/or rinse arms are secure in the machine before operating.
6. Ensure that drains are closed/sealed before operating.
7. Do not overfill racks.
8. Ensure that glasses are placed upside down in the rack.
9. Ensure that all chemicals being injected into 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 (see section on "Shutdown & Cleaning").
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.

PROBLEM	POSSIBLE CAUSE	REMEDY
Dishmachine runs continuously in the wash cycle.	Machine is in delime mode. Wash cycle delay timer is faulty. Wash cycle delay timer settings are not correctly adjusted. Cam timer is faulty.	Change operation mode from DELIME to NORMAL position. 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. 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. 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.
Dishmachine will not fill after the door is closed. <u>Power "ON" light is illuminated.</u>	Faulty rinse solenoid valve. Faulty door switch. Fouled/faulty high level probe.	Repair or replace valve as required. Verify the wiring of the switch; if correct, replace the switch. Clean probe if fouled. If clean and not working, replace.
Dishmachine will not fill after the door is closed. <u>Power "ON" light is not illuminated.</u>	Service breaker tripped. Machine not connected to power source. Faulty power source.	Reset. If the breaker trips again, contact an electrician to verify the amp draw of the machine. Verify that the machine has been properly connected to the power source. Verify the wiring of the switch; if correct, replace switch.
Dishmachine will not fill after the door is closed. <u>Power "ON" light is not illuminated.</u>	Service breaker tripped. Machine not connected to power source. Faulty power source.	Reset. If the breaker trips again, contact an electrician to verify the amp draw of the machine. Verify that the machine has been properly connected to the power source. Verify the wiring of the switch; if correct, replace switch.
Wash or rinse heater does not work.	Faulty heater element. Faulty heater contactor. Misadjusted/faulty thermostat(s).	Check element for continuity; if open, replace the heater. Replace the contactor. Verify the operation and setting of thermostats; replace if necessary.
Dishmachine fills slowly and/or rinse is weak.	Clogged or obstructed rinse arms. Low incoming water pressure. Y-strainer is clogged.	Remove and clean the rinse arms. Adjust the water pressure regulator to ensure that there is 20±5 PSI flow. Clean out the Y-strainer.
Rinse water is not reaching required temperature.	Faulty rinse heater. Misadjusted/faulty thermostat(s). Rinse thermometer is defective.	Check element for continuity; if open, replace heater. Verify operation and setting of thermostats; replace if necessary. Replace thermometer.

TROUBLESHOOTING

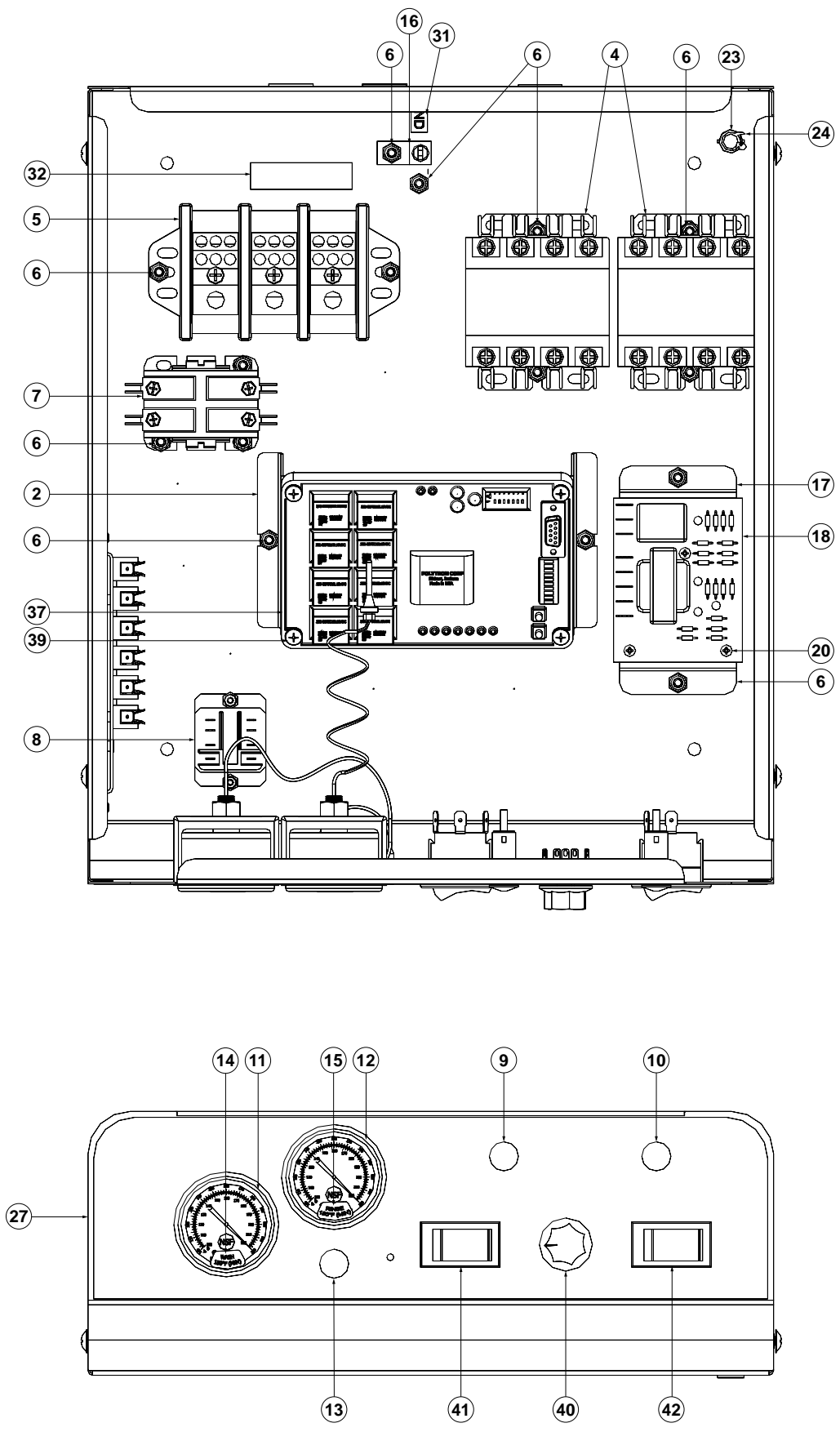
PROBLEM	POSSIBLE CAUSE	REMEDY
Wash water is not reaching required temperature.	Faulty wash heater.	Check element for continuity; if open, replace heater.
	Misadjusted/faulty thermostat(s).	Verify operation and setting of thermostats; replace if necessary.
	Wash thermometer is defective.	Replace thermometer.
Doors will not close completely.	Improper spring tension.	Adjust spring tension as required by loosening (not removing) spring bolt nuts and adjusting the tension. Tighten nuts back when done.
	Obstruction in door channel.	Remove the obstruction.
	Doors are not square with frame.	Adjust the frame to accommodate the doors.
Water leaks at the wash pump.	Wash pump seal defective.	Replace the seal.
	Petcock or pump drain (if equipped) not shut/tight.	Close or tighten.
	Loose hoses (hose clamps) on the wash pump.	Tighten the hose clamps.
Will not rinse during autcycle.	Defective rinse solenoid.	Repair or replace the rinse solenoid as required.
	Faulty fill microswitch.	Replace microswitch.
	No water to the machine.	Verify that there is water at 20±5 PSI connected to the machine.
Dishes are not coming clean.	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.
	No detergent/too much detergent.	Adjust detergent concentration as required for the amount of water held by the machine.
	Solid dispenser canister is empty.	Replace the canister.

TOP MOUNTED CONTROL BOX ASSEMBLY



PARTS

TOP MOUNTED CONTROL BOX ASSEMBLY (CONTINUED)



TOP MOUNTED CONTROL BOX ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Weldment	05700-003-30-14
2	1	Timer Bracket	05700-003-02-08
3	2	Lock Nut 6-32	05310-373-03-00
4*	2	Heater Contactor	05945-109-01-69
5	1	Terminal Block	05940-011-48-27
6	17	Lock Nut 10-24	05310-373-01-00
7	1	Contactor, Wash Motor	05945-002-74-20
8	1	Relay	05945-111-47-51
	1	Relay (415V, 3PH, 5 Wire Only)	05945-111-89-75
9	1	Light, Green	05945-111-44-43
10	1	Light, Red	05945-111-44-45
11	1	Temperature Gauge, Wash 96" Lead	06685-111-68-49
12	1	Temperature Gauge, Rinse 48" Lead	06685-111-68-48
13	1	Light, Yellow	05945-111-44-44
14	1	Decal, Wash 150°F Min	09905-002-97-61
15	1	Decal, Rinse 180°F Min	09905-002-97-62
16	1	Ground Lug	05940-200-76-00
17	1	Bracket, Liquid Level Control Board	05700-002-13-22
18	1	Liquid Level Control Board	06680-200-08-21
19	6	Tricnut, 6-32	05340-118-04-00
20	3	Screw, 6-32 x 5/8"	05305-011-39-85
21	3	Plug, 1/2"	05975-011-47-81
22	2	Grommet, 7/8" Split	05975-200-40-00
23	1	Bushing Snap	05975-210-02-00
24	1	Clamp, Hose .25-.312	05975-002-61-43
25	1	Decal, Warning-Disconnect Power	09905-100-75-93
26	1	Cover, Top Mount Control Box	05700-002-23-03
27	1	Decal, Control Box	09905-003-97-38
28	4	Lockwasher, Int. Tooth #10	05311-273-03-00
29	4	Screw, 10-32 x 3/8" Phillips Truss Head	05305-173-12-00
30	1	Decal, Copper Conductors	09905-011-47-35
31	1	Decal, Ground	09905-011-86-86
32	1	Decal, L1, L2	09905-002-78-67
33	1	Bracket, Fuse Strip	05700-002-42-03

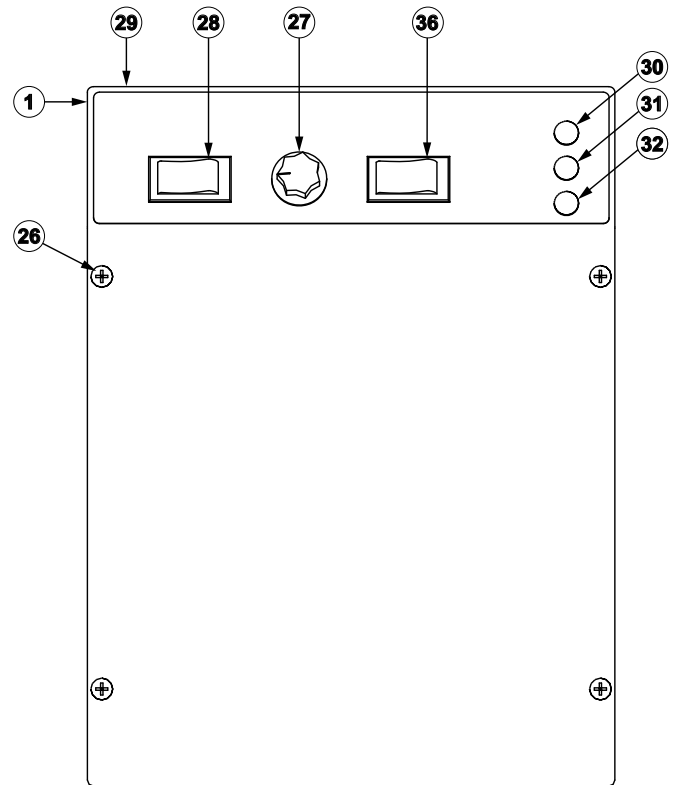
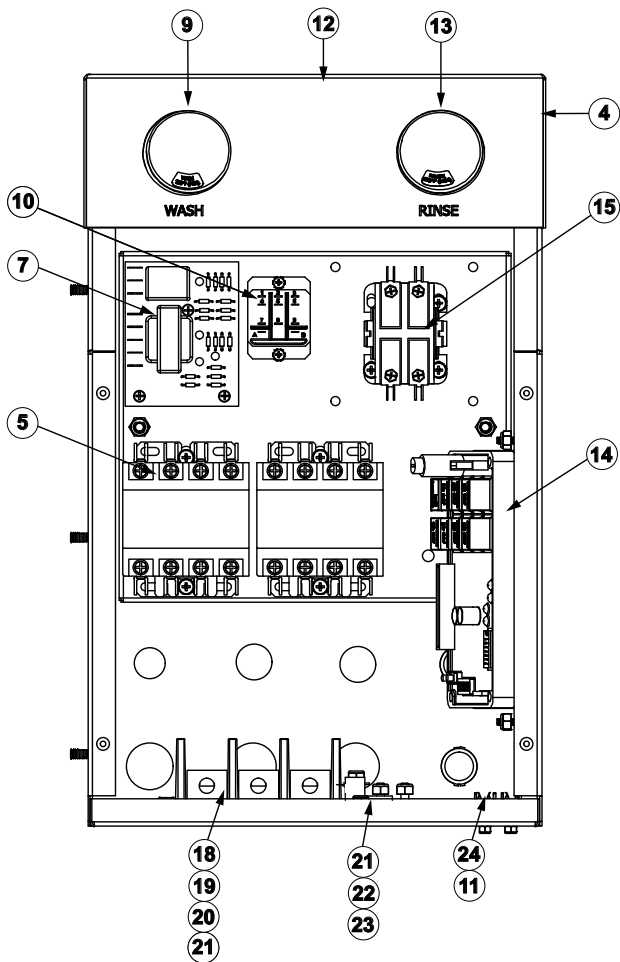
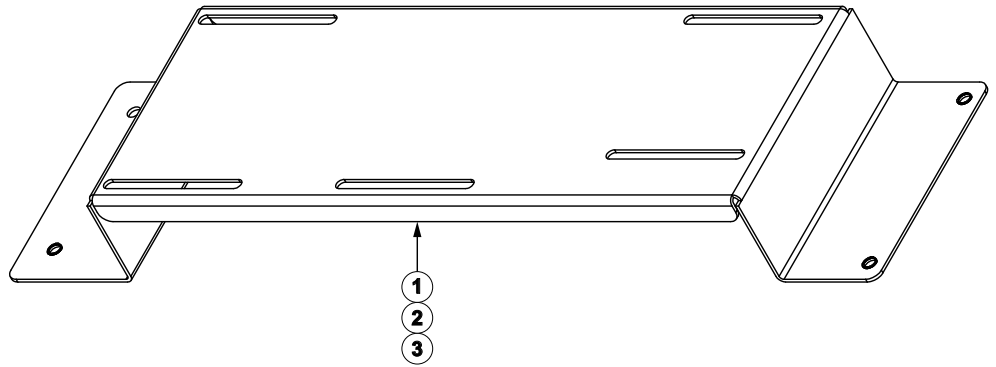
PARTS

TOP MOUNTED CONTROL BOX ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
34	1	Fuse Holder, 6 Pole	05920-002-42-13
35	2	Screw, 6-32 x 3/8" with Ext. Tooth Washer	05305-002-25-91
36	1	Decal, Dispenser Connection	09905-003-34-09
37	1	Timer, Universal	05945-003-33-09
		Timer, Universal Fused (Alternate)	05945-003-75-23
38	4	Locknut, 10-32	05310-373-02-00
39	4	Screw 10-32 x 1"	05305-002-19-42
40	1	Switch, Rotary Selector	05930-003-97-61
41	1	Switch, Operation	05930-301-53-00
42	1	Switch, Power	05930-011-49-55
43*	1	Overload, TK-ONLY (460 Volt Unit Only)	05945-002-65-02
44*	1	Motor Contactor, SC-03Y (460 Volt Unit Only)	05945-002-65-00
45*	1	Din Rail 2-3/4" (460 Volt Unit Only)	05700-001-84-65

*For a 460V Unit, replace item 4 with items 43, 44 & 45.

SIDE MOUNT UNIVERSAL TIMER CONTROL BOX ASSEMBLY



PARTS

SIDE MOUNT UNIVERSAL TIMER CONTROL BOX ASSEMBLY (CONTINUED)

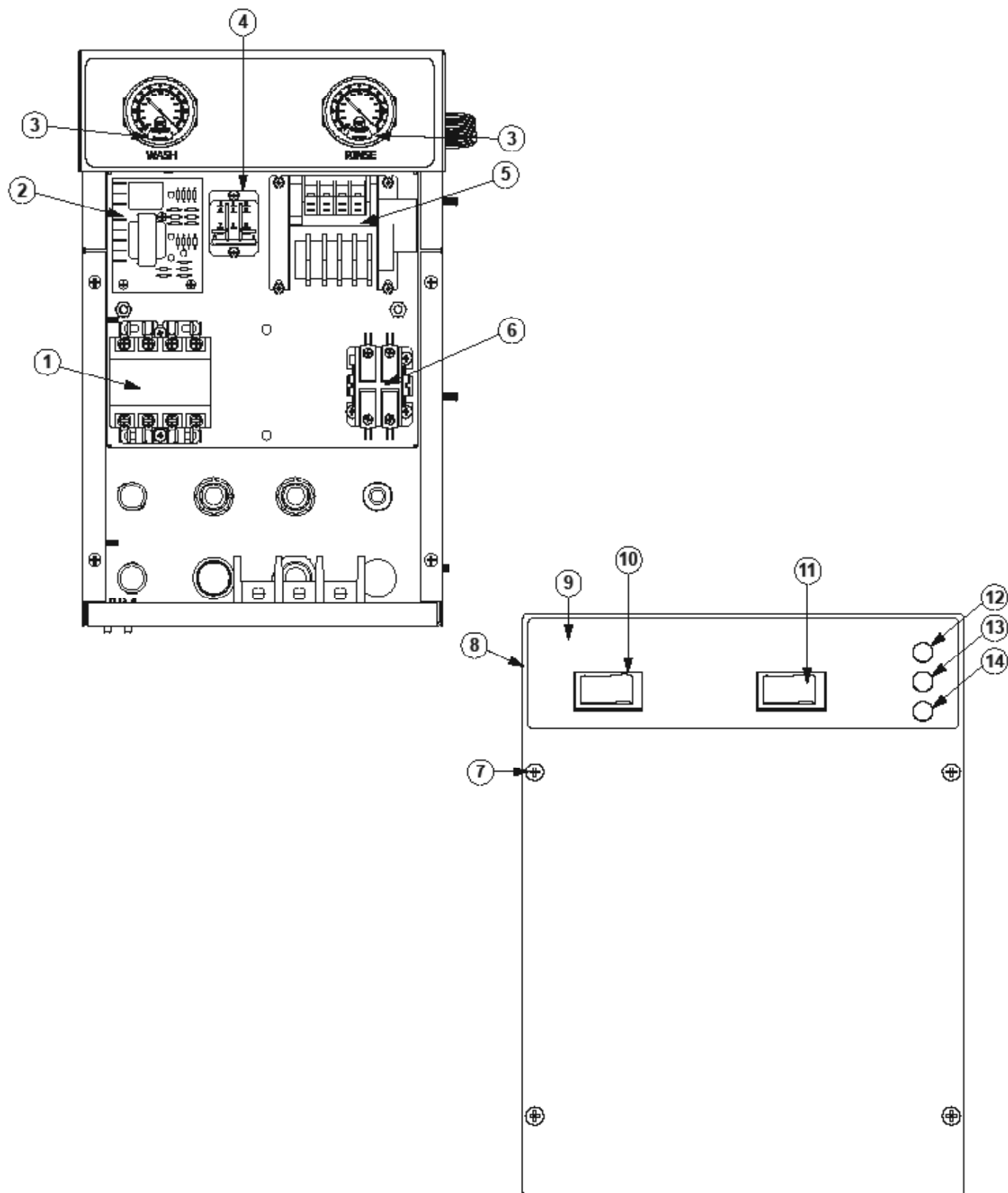
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bracket, Electrical Box Mounting	05700-002-18-48
2	9	Locknut, 1/4"-20 S/S Hex with Nylon Insert	05310-374-01-00
3	9	Washer, 1/4"-20 I.D. S/S	05311-174-01-00
4	1	Control Box Weldment, Right Hand	05700-002-06-48
	1	Control Box Weldment, Left Hand	05700-002-23-08
5	2	Contactor, 4 Pole, 220V, 1 Phase	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°F	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°F	09905-002-97-62
14	1	Timer, Universal	05945-003-75-23
15	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
16	1	Contactor, 2 Pole, 220V, 20 Amp (208-230V Unit only)	05945-002-74-20
17	1	Timer, Cycle Delay (not used with Universal Timer) (not shown)	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	05740-200-76-00
23	1	Decal, Ground	09905-011-86-86
24	1	Holder, Fuse	05920-401-03-14

SIDE MOUNT UNIVERSAL TIMER CONTROL BOX ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
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, Rotary Selector	05930-003-97-61
28	1	Switch, Operation	05930-301-53-00
29	1	Decal, Control Box Cover	09905-003-97-39
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 (not shown)	05700-021-50-89
34	1	Contactor, 2 Pole, 220V, 20 Amp (460V Unit Only)	05945-002-65-00
35	1	Overload (460V Unit Only)	05945-002-65-01
36	1	Switch, Power	05930-011-49-55

PARTS

SIDE MOUNT MECHANICAL TIMER CONTROL BOX

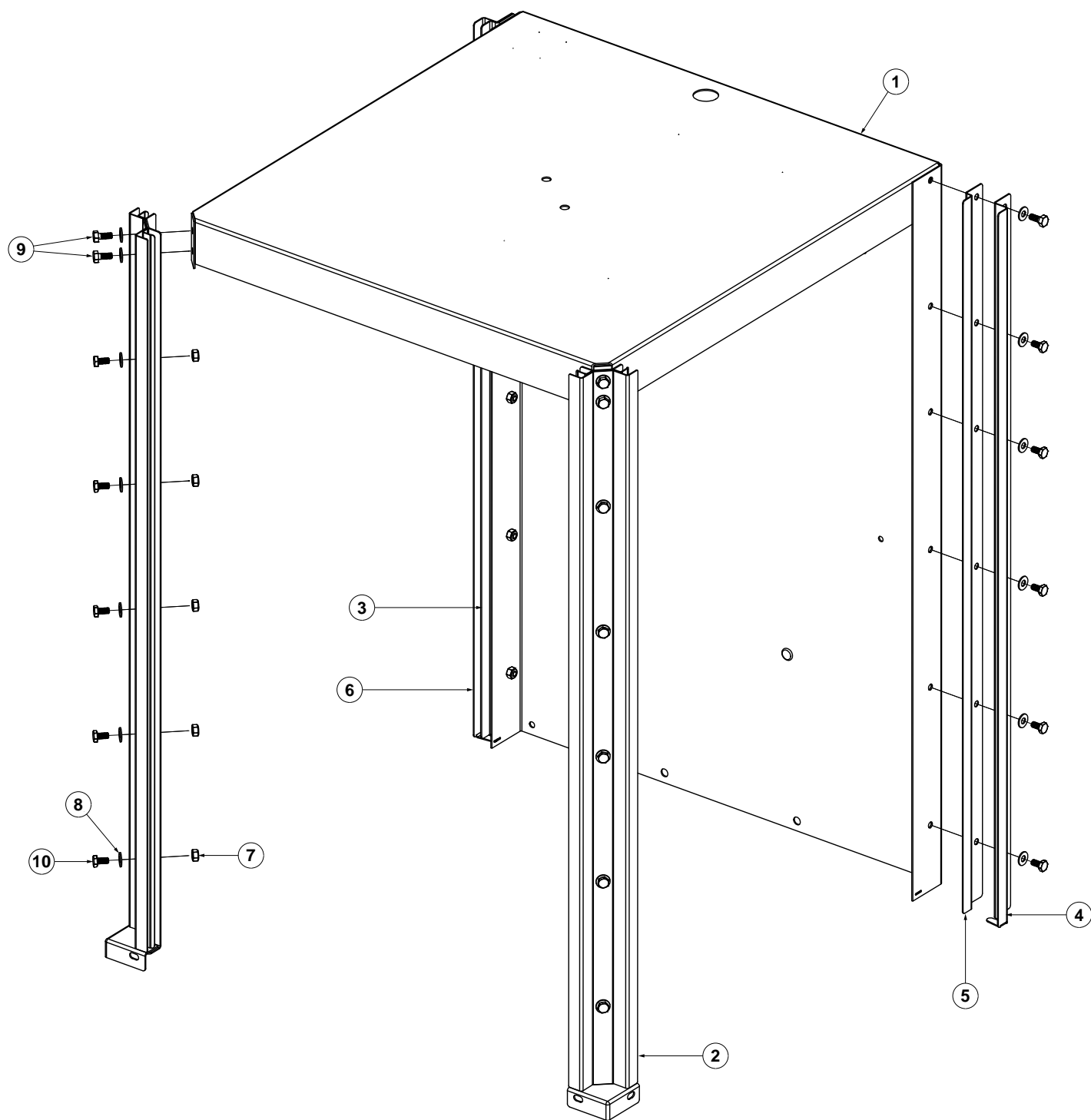


SIDE MOUNT MECHANICAL TIMER CONTROL BOX (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Contactor, 4 Pole, 220V, 1 Phase	05945-109-01-69
2	1	Liquid Level Control	06680-200-08-21
3	1	Decal, 120°F Wash/Rinse (not shown)	09905-002-82-46
4	1	Relay, 240V, 50/60Hz, Top Mount	05945-002-47-74
5	1	Timer, Cam/Mechanical	05945-303-31-00
6	1	Contactor, 2 Pole, 220V, 20 Amp (208-230V Unit only)	05945-002-74-20
7	4	Bolt, 10-32 x 1/2" Slotted Truss	05305-173-04-00
8	1	Bracket, Electrical Box Mounting	05700-002-18-48
9	1	Decal, Control Box Cover	09905-003-97-39
10	1	Switch, Operation	05930-301-53-00
11	1	Switch, Power	05930-011-49-55
12	1	Light, Red	05945-504-07-18
13	1	Light, Green Indicator	05945-504-08-18
14	1	Light, Amber	05945-504-06-18

PARTS

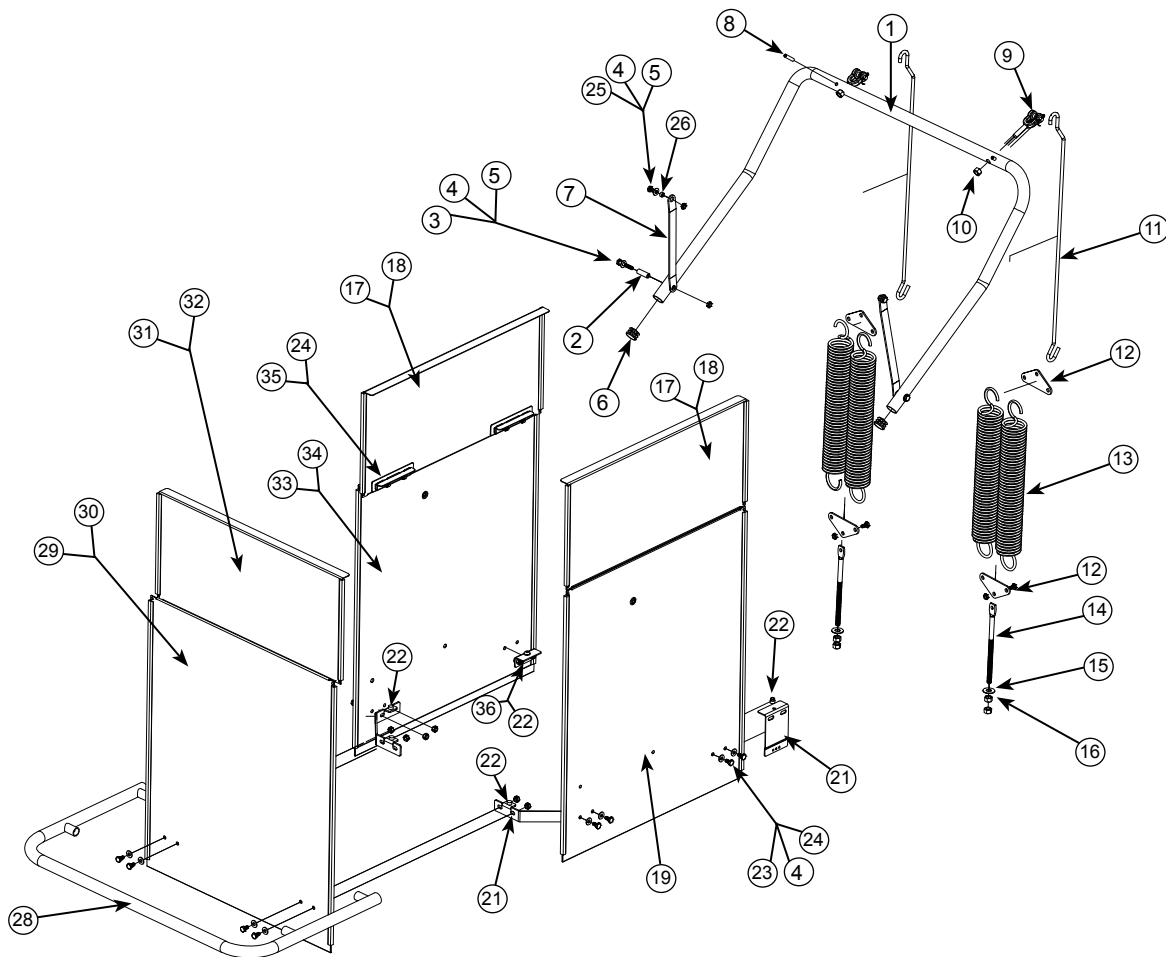
HOOD ASSEMBLY



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Hood Weldment	05700-003-05-67
2	2	Hood Support Assembly	05700-004-13-45
3	1	Left Back Inner Door Guide	05700-031-76-34
4	1	Right Back Outer Door Guide	05700-031-76-32
5	1	Right Back Inner Door Guide	05700-031-76-35
6	1	Left Back Outer Door Guide	05700-031-76-33
7	34	Locknut, 1/4-20 Hex w/Nylon Insert	05310-374-01-00
8	26	Washer, S/S 1/4-20 I.D.	05311-174-01-00
9	6	Screw, 1/4-20 x 5/8 S/S Hex Head	05305-274-24-00
10	20	Bolt, 1/4-20 x 1/2 Long	05305-274-02-00

PARTS

CANTILEVER ARM/DOOR ASSEMBLIES



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Cantilever Arm	05700-004-14-29
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" I.D. 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

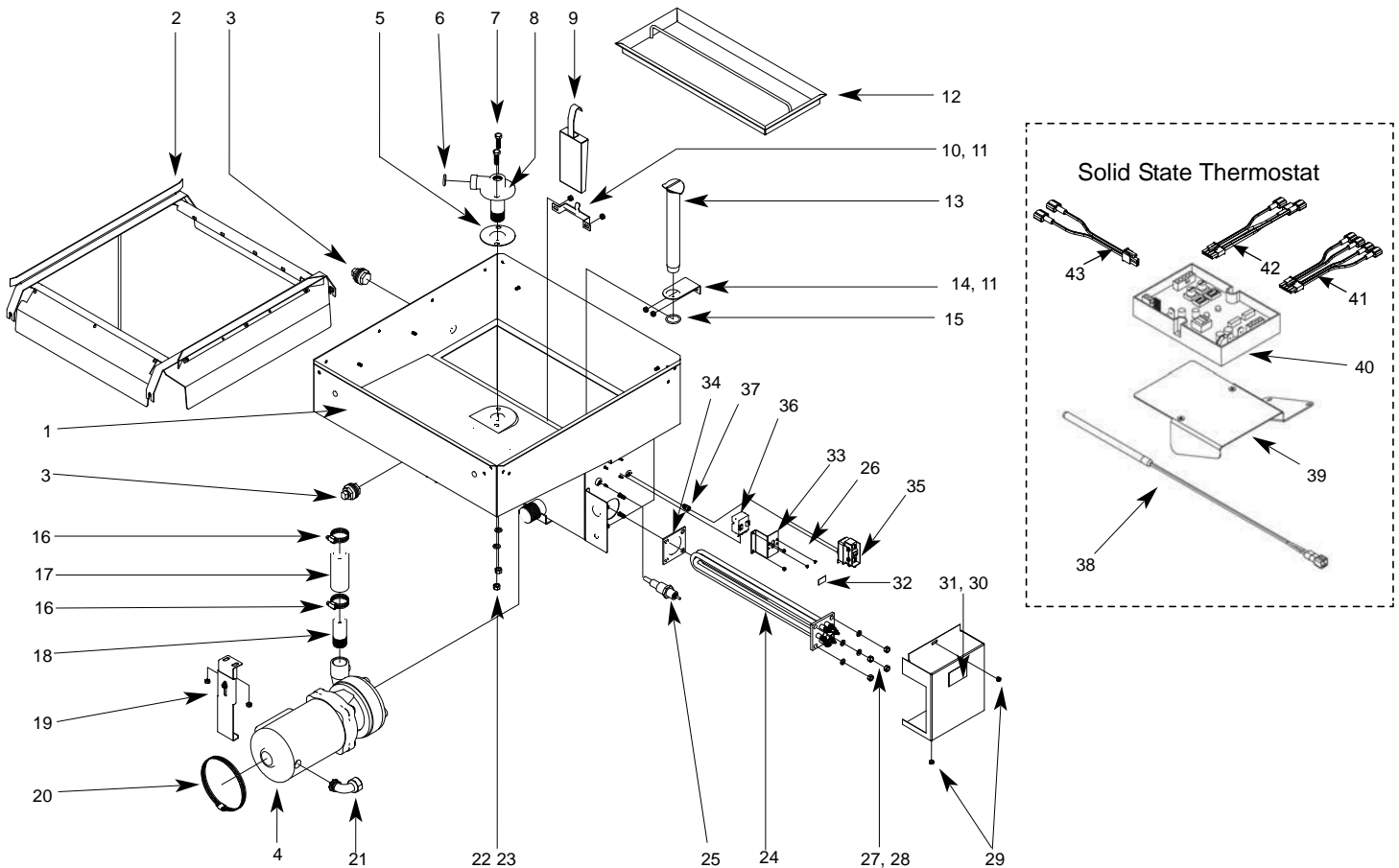
PARTS

CANTILEVER ARM/DOOR ASSEMBLIES

ITEM	QTY	DESCRIPTION	PART NUMBER
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 & Right Assemblies (not shown)	05700-002-01-30
17	2	Door, Upper, Left & Right Weldment	05700-002-29-59
18	4	Glide, Upper Door	05700-002-00-83
	1	Door, Lower, Right Assembly (not shown)	05700-002-01-33
19	1	Door, Lower, Right	05700-004-14-18
20	2	Glide, Lower Door	05700-002-23-64
21	1	Door Stop Magnet Assembly	06401-003-08-68
	1	Door Stop Magnet Weldment (not shown)	05700-002-01-27
	1	Magnet (not shown)	05930-111-69-25
	2	End Cap (not shown)	05700-011-60-92
22	6	Bumper, Noble HT-180 HH Door	05700-004-14-25
23	12	Screw, 1/4"-20 x 5/8"	05305-274-24-00
24	12	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	05700-004-14-24
28	1	Handle, Front Door Weldment	05700-004-14-30
	1	Door, Lower, Front Assembly (not shown)	05700-002-01-31
29	1	Door, Lower, Front	05700-004-14-22
30	2	Glide, Upper Door	05700-002-23-64
	1	Door, Upper Front Assembly (not shown)	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 (not shown)	05700-002-01-32
	1	Door, Lower, Left Assembly (Door Lock) (not shown)	05700-004-24-21
33	1	Door, Lower, Left	05700-004-14-20
	1	Door, Lower, Left (Door Lock) (not shown)	05700-004-24-22
	1	Door Interlock Bracket (not shown)	05700-004-23-17
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 (not shown)	09515-003-15-64
38	6	Wear Button (not shown)	05700-011-88-01

PARTS

TUB ASSEMBLY



W-BRACKET, MOTOR MOUNT INNER
05700-004-13-09

F-BRACKET, MOTOR MOUNT OUTER
05700-004-13-08

BOLT, 1/4-20 X 1/2"
05305-274-02-00

WASHER, 1/4" I.D. X 3/4" O.D.
05311-011-76-30

LOCKNUT, 1/4-20
05310-374-01-00

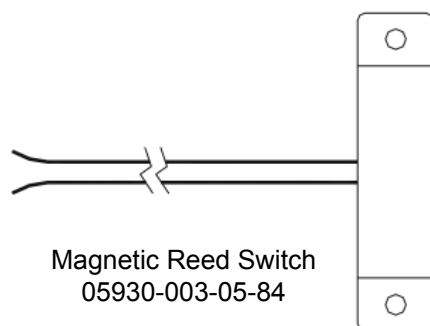
TUB ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tub Weldment	05700-002-12-59
2	1	Rack Assembly	05700-002-01-00
3	2	Bulk Head Plug	04730-609-05-00
4	1	See Page Entitled "Wash Motors"	N/A
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	05700-003-07-76
13	1	Wash Overflow Weldment	05700-001-25-69
*	1	Support, Ball Stop Lift	05700-002-91-55
*	1	Ball Stop Lift	05700-002-91-54
*	1	Shim, Overflow Support	05700-002-96-48
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" 90B	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	See Page Entitled "Wash Heaters/Rinse Heaters" See page 27 to order phase conversion kits for the heater.	N/A
25	1	Probe, High Water	06680-200-02-68
26	5	Locknut, 6-32 with Nylon Insert	05310-373-03-00
27	4	Lockwasher, 5/16", S/S, Split	05311-275-01-00
28	4	Nut, Hex, 5/16"-18, S/S	05310-275-01-00
29	4	Locknut, 10-24 with Nylon Insert	05310-373-01-00

PARTS

TUB ASSEMBLY (CONTINUED)

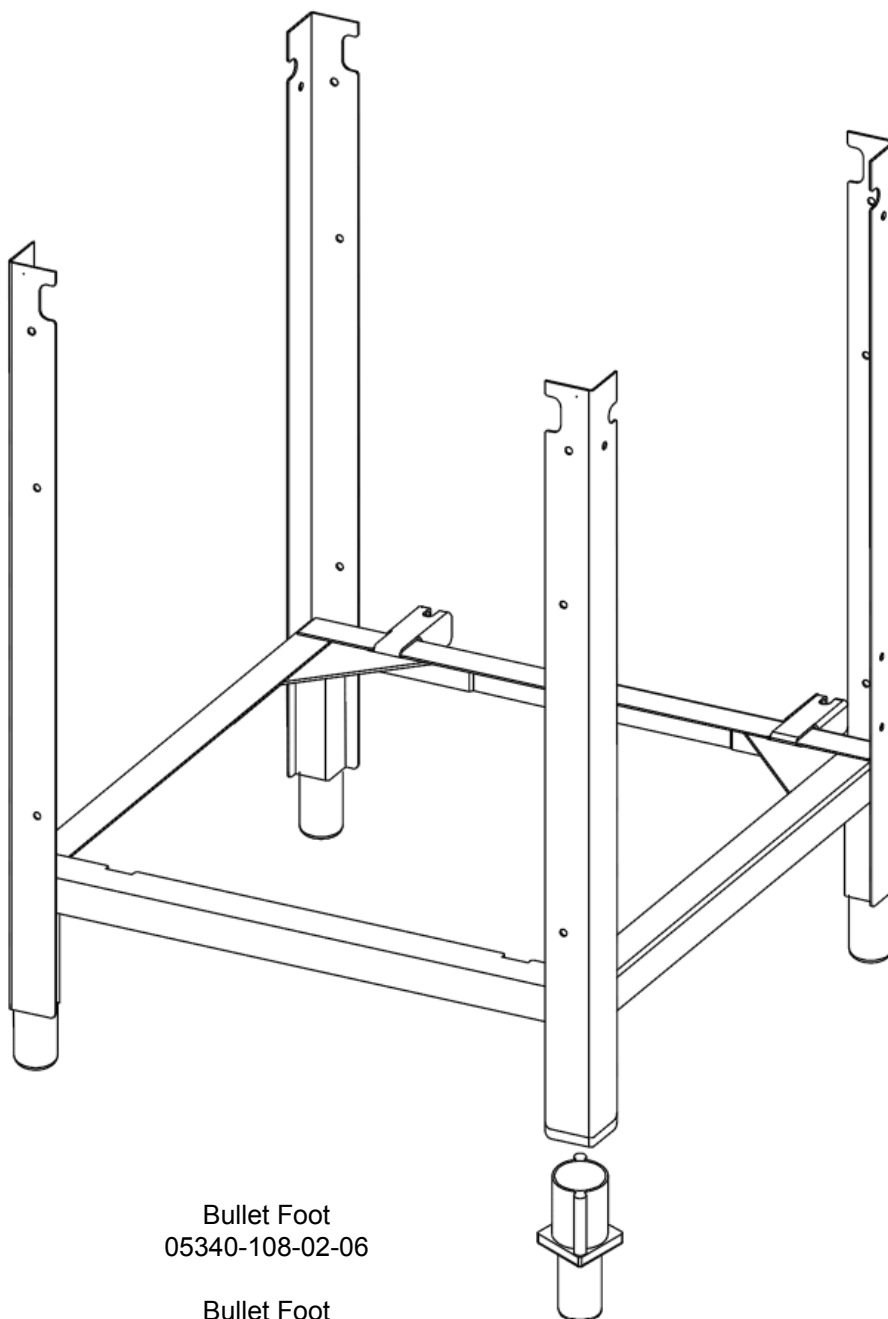
ITEM	QTY	DESCRIPTION	PART NUMBER
30	1	Cover, Wash Heater	05700-031-47-57
31	1	Decal, Warning-Disconnect Power	09905-100-75-93
32	1	Decal, High Limit	09905-011-84-32
33	1	Thermostat Bracket	05700-011-81-64
34	1	Wash Heater Gasket	05330-011-47-79
35	1	Thermostat, Regulating	05930-510-02-79
	1	Kit, Wash Thermostat Replacement (Includes: thermostat, brass fitting, 2 jumper wires & instructions)	06401-003-18-22
36	1	Thermostat, High Limit	05930-011-49-43
37	1	Fitting, 1/4" Imperial Brass	05310-924-02-05
38	1	Probe, Thermister 4" LG	06685-004-17-26
39	1	Thermostat Mounting Bracket	05700-004-22-17
40	1	Thermostat, Elan Electric Dual	06685-004-17-27
41	1	Harness, 5-Connector	05700-004-23-78
42	1	Harness, 4-Connector	05700-004-23-79
43	1	Harness, 2-Connector	05700-004-23-80



Associated Hardware:

Lockwasher, #8 Internal Tooth	05311-272-03-00
Locknut, 1/4"-20 S/S Hex with Nylon Insert	05310-374-01-00
Screw, 8-32 x 3/4" Round Head	05305-172-06-00

Cover, Front Panel
05700-002-01-42



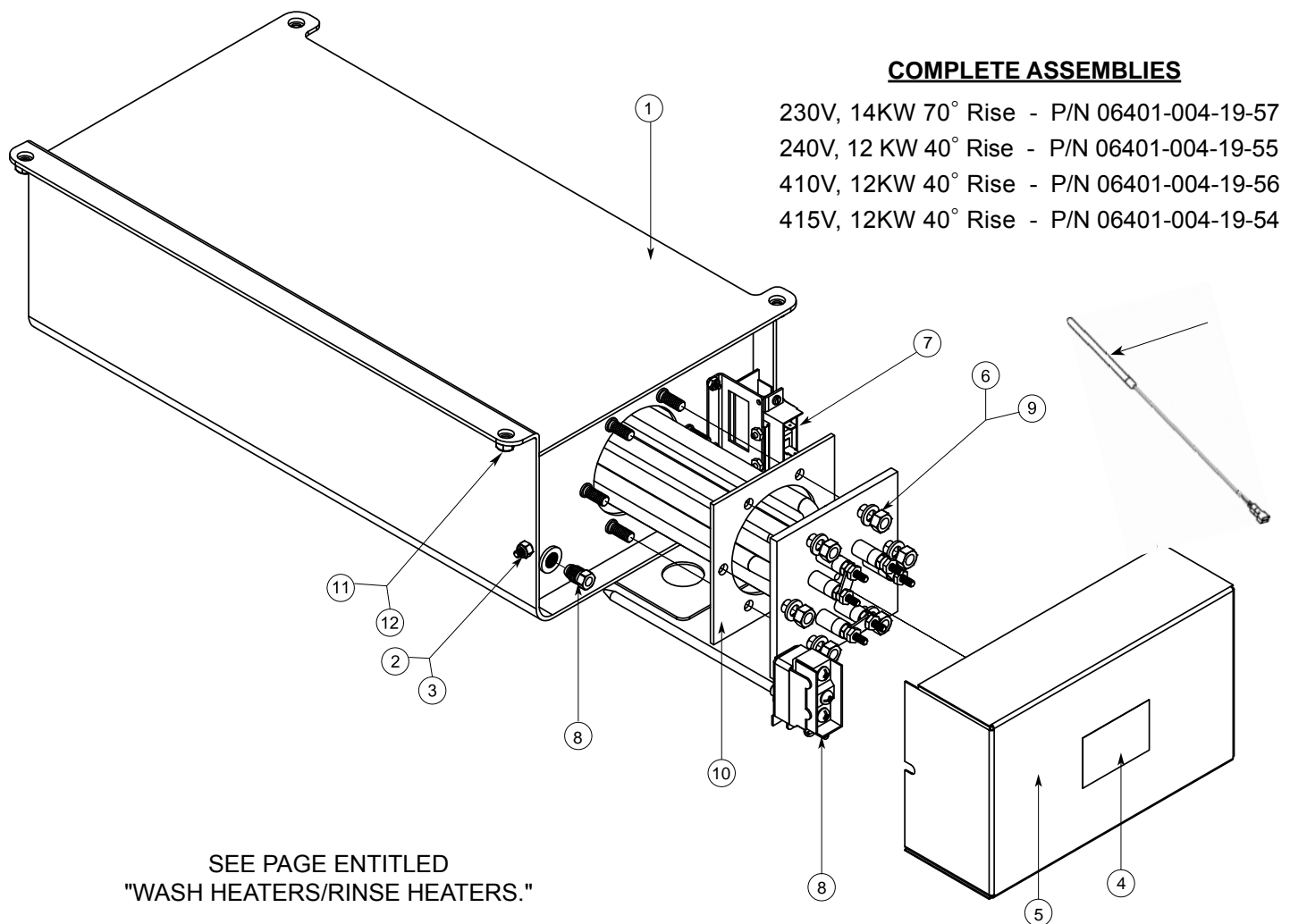
Bullet Foot
05340-108-02-06

Bullet Foot
05340-002-14-55

Flange Feet
05340-002-01-15

PARTS

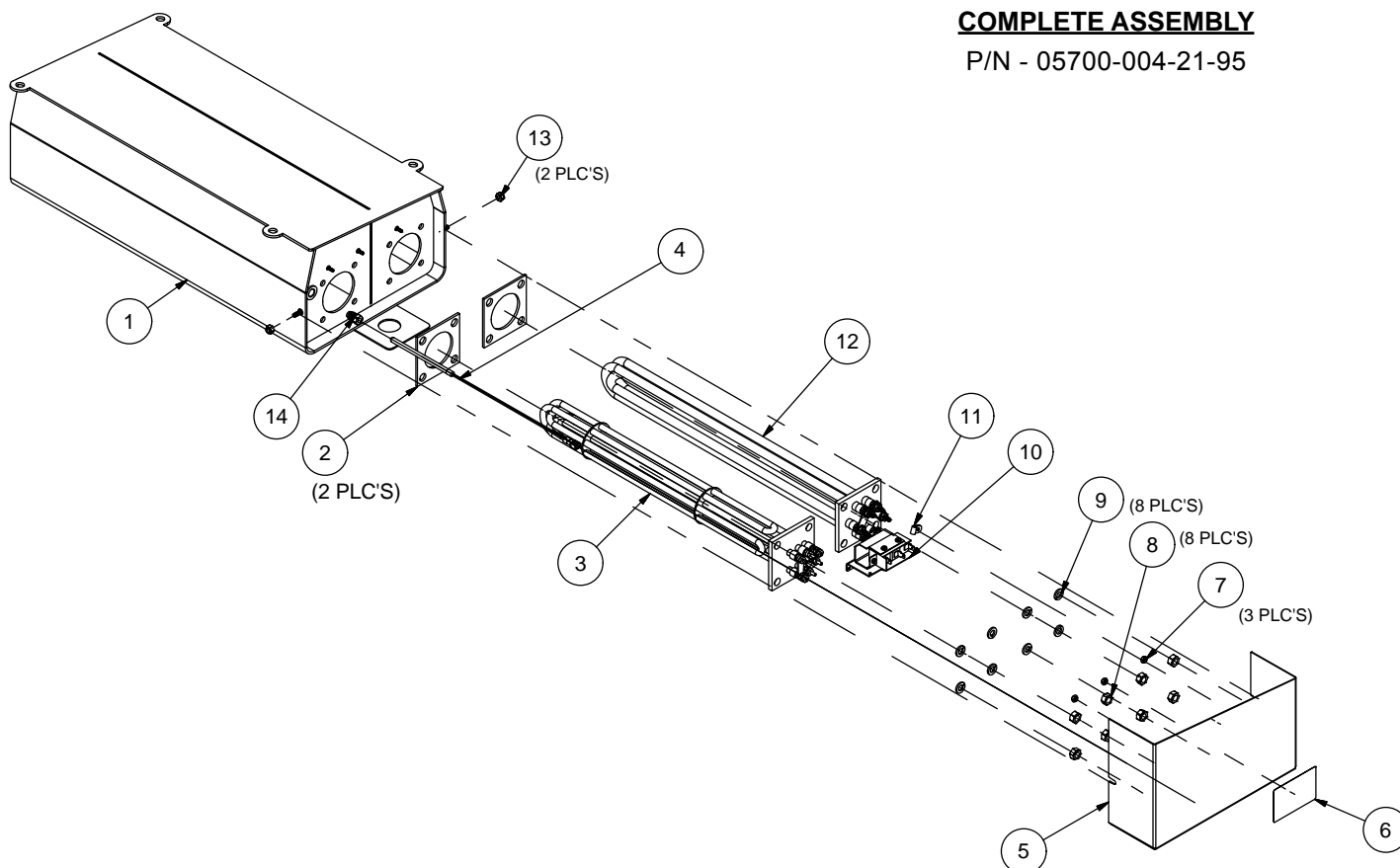
RINSE TANK ASSEMBLY



ITEM	QTY	DESCRIPTION	PART NUMBER
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
13	1	Probe, Thermistor 4" LG	06685-004-17-26

COMPLETE ASSEMBLY

P/N - 05700-004-21-95



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Booster Tank Weldment - Ventless HH	05700-004-21-83
2	2	Gasket, Wash Heater	05330-011-47-79
3	1	Heater, 10KW 230V	04540-021-62-57
4	1	Probe, Thermistor 4" LG	06685-004-17-26
5	1	Booster Tank Cover	05700-004-21-94
6	1	Label, Disconnect Power Warning	09905-004-08-16
7	3	Nut, Lock 6-32 Hex w/ Nylon Insert	05310-373-03-00
8	8	Nut, Hex 5/16-18 S/S	05310-275-01-00
9	8	Lockwasher, Split 5/16 S/S	05311-275-01-00
10	1	Thermostat, 220D Hi-Limit	05930-011-49-43
11	1	Clamp	05975-601-10-15
12	1	Heater, 5.45KW 240V, Wash	04540-121-47-39
13	2	Nut, Lock 10-24 S/S Hex w/ Nylon Insert	05310-373-01-00
14	1	Fitting, Brass Nut Sleeve Fitting	05310-924-02-05

PARTS

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 the correct wash motor assembly is ordered for the model being serviced, refer to the following table:

MODEL	VOLTS	Hz	PHASE	WASH MOTOR ASSEMBLY
NOBLE HT-180 HH	415	50	3	06105-002-45-07

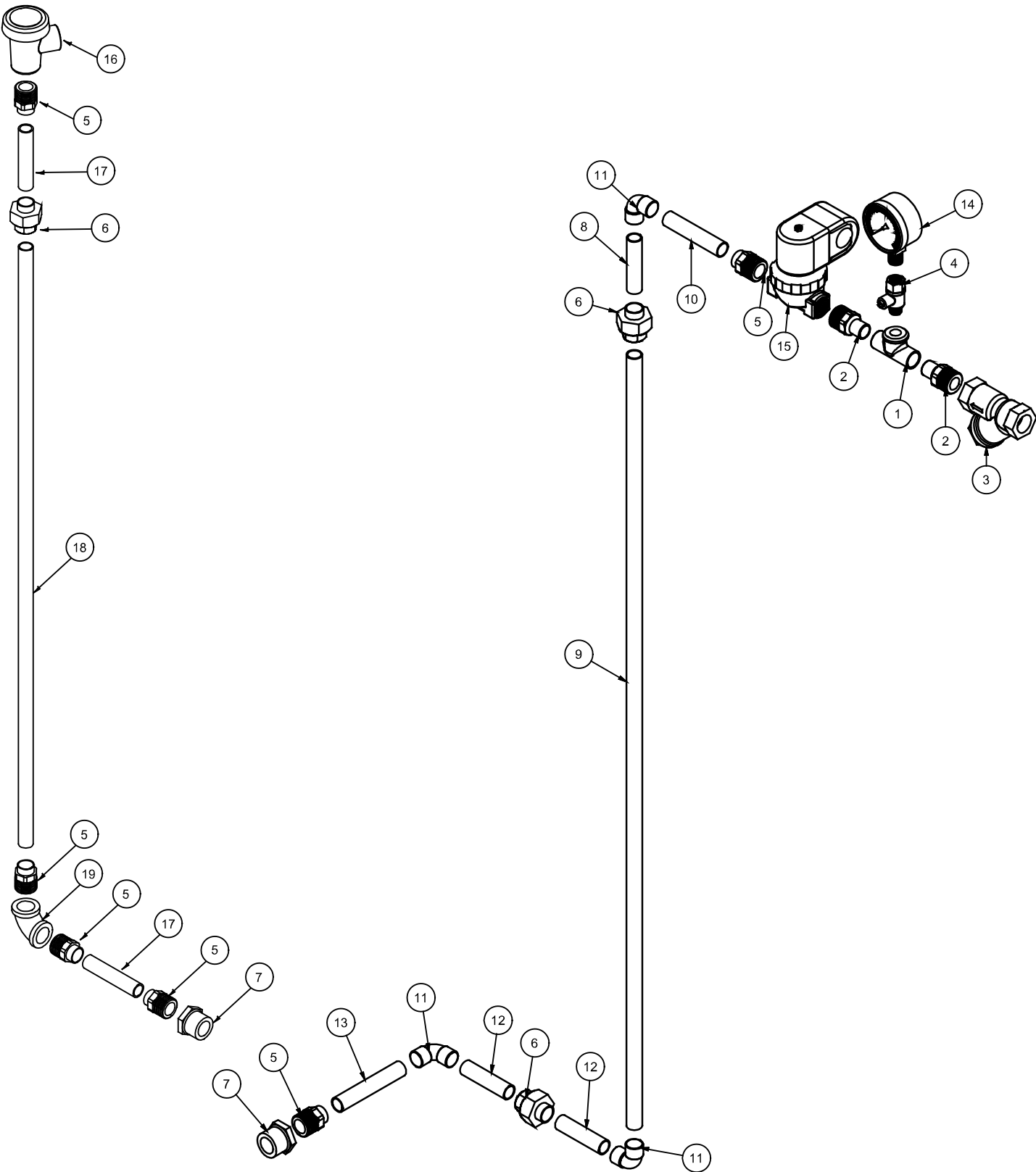
NOTE: When servicing a wash motor please refer to the wiring schematic found on the motor to ensure that it is wired correctly. Different manufacturers use different wire color codes and your new motor may not connect using the same wires. Always refer to the diagrams on the motor you are installing. If the schematics have been removed from the motor you are installing, contact Noble Warewashing technical support immediately.

The Noble models covered in this manual come supplied with various heaters, depending on the characteristics of the machine. To ensure that the correct heater is ordered for the model being serviced, refer to the following table:

MODEL	V	Hz	PH	WASH HEATER ASSEMBLY	40°F RISE RINSE HEATER (12KW)	70°F RISE RINSE HEATER (14KW)
NOBLE HT-180 HH	415	50	3	04540-002-43-09	04540-002-43-10	N/A
NOBLE HT-180 HH	208	60	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
NOBLE HT-180 HH	230	60	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
NOBLE HT-180 HH	208	60	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
NOBLE HT-180 HH	230	60	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
NOBLE HT-180 HH	460	60	3	04540-121-65-99	04540-100-01-15	04540-121-63-39

PARTS

Y-STRAINER INCOMING & OUTLET PLUMBING ASSEMBLIES

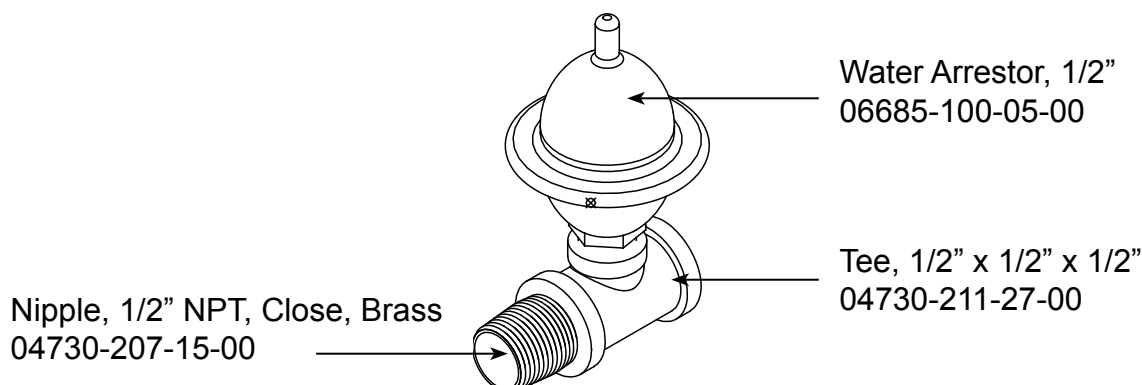


Y-STRAINER INCOMING & OUTLET PLUMBING ASSEMBLIES (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Fitting, Tee, 1/2" x 1/2" x 1/4"	04730-411-25-01
2	2	Adapter, 1/2" MNPT x CU Male	04730-011-59-53
3	1	Strainer, Y 1/2"	04730-217-01-10
4	1	Valve, Ball Test Cock 1/4" Bronze	04810-011-72-67
5	6	Adapter, 1/2"	04730-401-03-01
6	3	Union, 1/2"	04730-412-05-01
7	1	Bushing, HEX 3/4 MNPT-1/2 FNPT Brass	04730-002-56-27
8	3	F-Tube, Copper 1/2" x 2.5"	05700-002-17-38
9	2	F-Tube, Copper 1/2" x 37"	05700-003-60-80
10	1	F-Tubing, Copper 1/2" x 3"	05700-001-05-21
11	3	Elbow, 1/2" CU x CU, 90B	04730-406-01-01
12	2	F-Tube, Copper 1/2" x 2.406"	05700-003-60-79
13	1	F-Tube, Copper 1/2" x 3.5	05700-003-60-78
14	1	Gauge 0-100# Pressure	06685-111-88-34
15	1	Valve, 1/2" 208-240 Red	04810-100-09-18
16	1	Vacuum Breaker, 1/2" NPT	04820-003-06-13
17	1	Adapter, Male	04730-401-03-01
18	1	F-Tube, Copper 1/2" x 30.75"	05700-003-60-81
19	1	Elbow, 1/2" NPT 90 Brass	04730-011-42-96

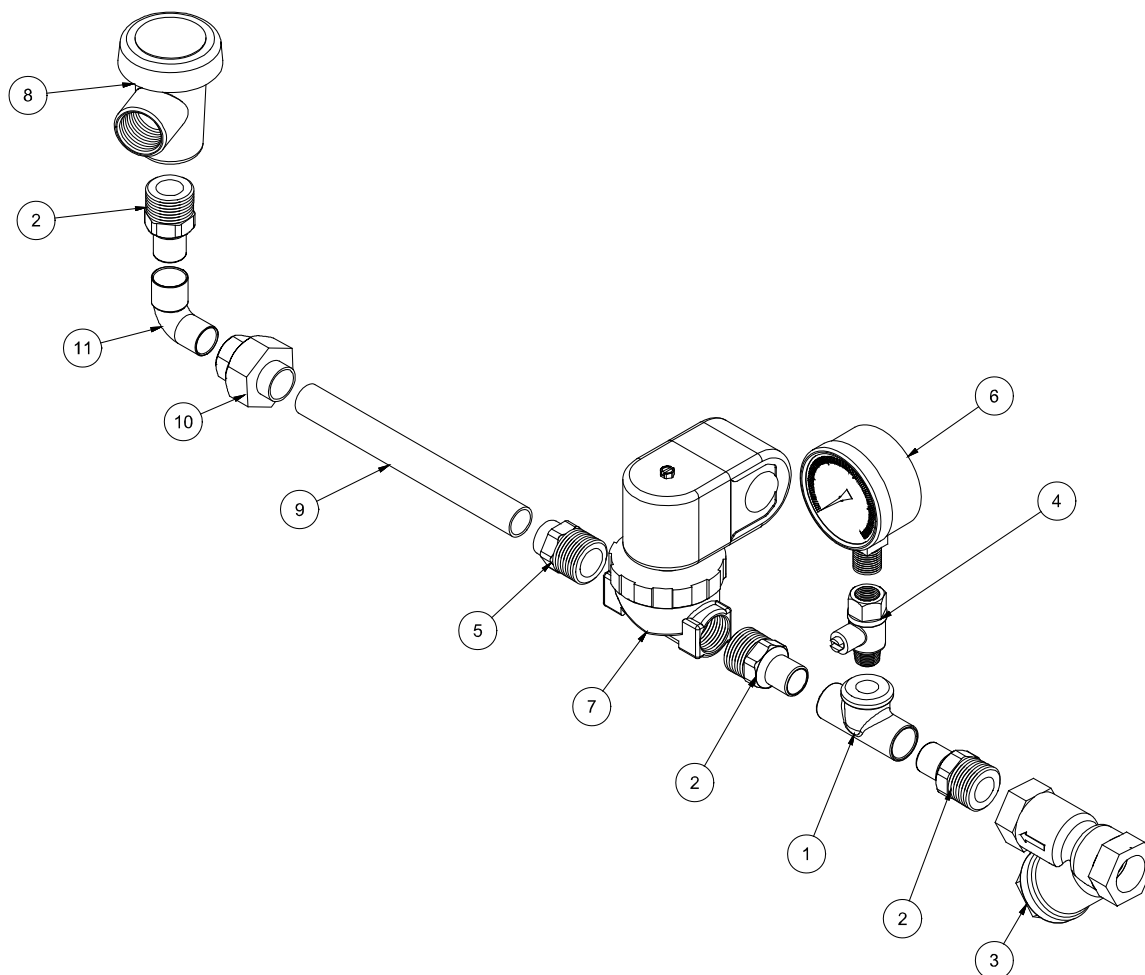
When servicing plumbing components, take care not to damage the threads of each individual item. Damaged threads can cause leaks and loss of pressure, which could adversely effect the performance of the NOBLE HT-180 HH dishmachine. It is strongly recommended that teflon thread tape, used in conservative 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

WPRK KIT OPTION



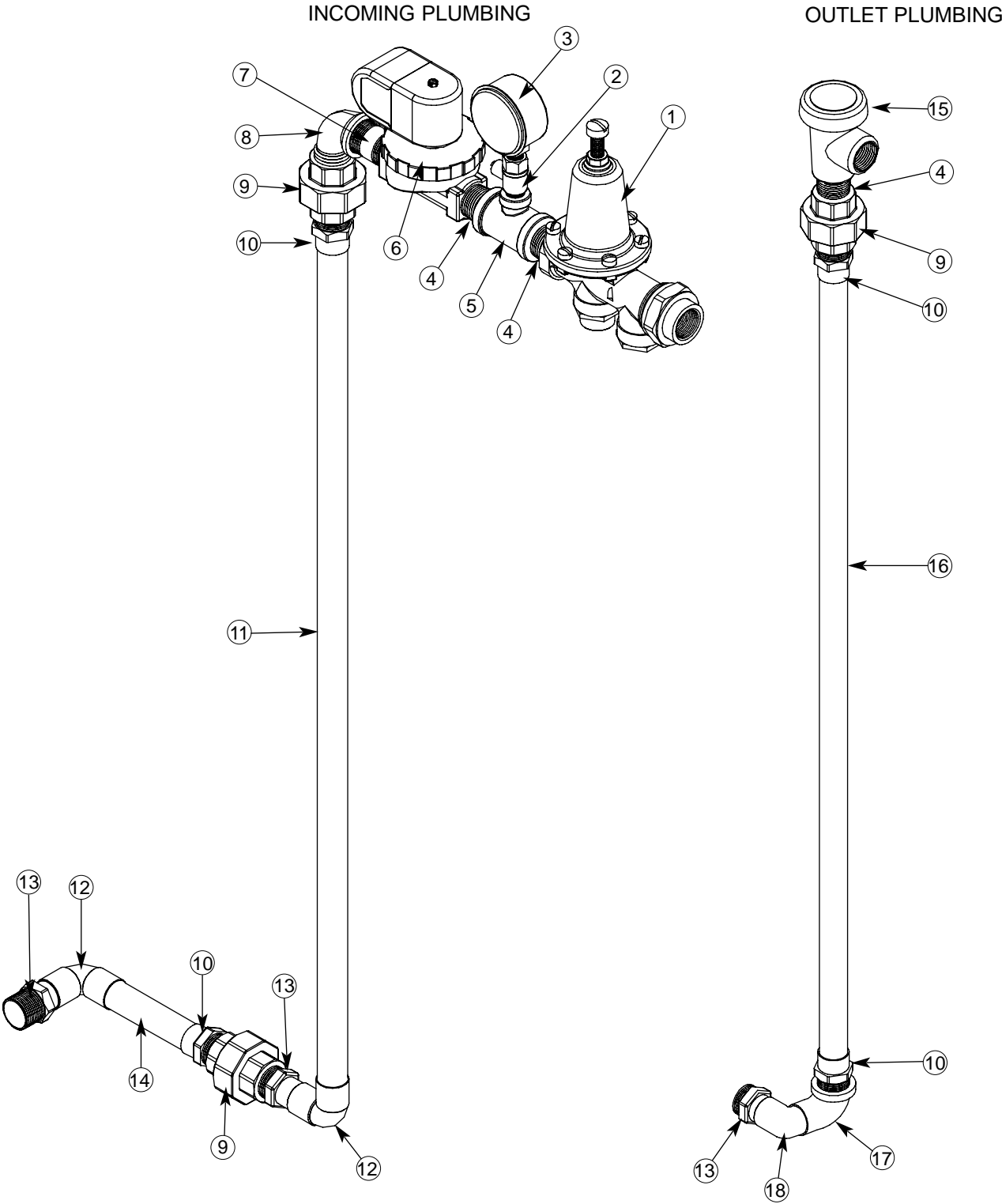
PARTS

Y-STRAINER INCOMING & OUTLET PLUMBING ASSEMBLIES (NOBLE HT-180 HH)



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tee, Brass, 1/2" x 1/2" x 1/4" NPT	04730-411-25-01
2	3	Adapter, 1/2" MNPT x Cu Male	04730-011-59-53
3	1	Strainer, Y 1/2"	04730-217-01-10
4	1	Valve, Ball, Bronze, 1/4" NPT	04810-011-72-67
5	1	Adapter, 1/2" Male/Cu to MSPS	04730-401-03-01
6	1	Pressure Gauge, 0-100 PSI	06685-111-59-66
7	1	Valve, Solenoid, 1/2" NPT 208-240V	04810-100-09-18
8	1	Vacuum Breaker, 1/2" NPT	04820-003-06-13
9	1	Tube, Copper 1/2" x 5.75	05700-002-91-03
10	1	Union, 1/2"	04730-412-05-01
11	1	Elbow, 1/2" 90° Cu to MSPS	04730-406-32-01

PRESSURE REGULATOR INCOMING & OUTLET PLUMBING ASSEMBLIES

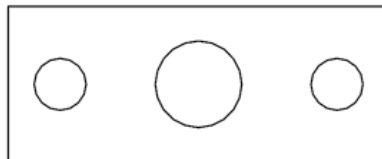


PARTS

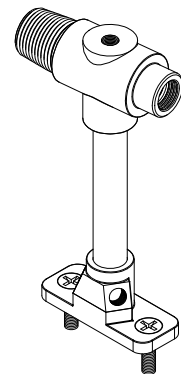
PRESSURE REGULATOR INCOMING & OUTLET PLUMBING ASSEMBLIES (CONTINUED)

ITEM	QTY	DESCRIPTION	PART NUMBER
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
	2	Double Pipe Clamp (not shown)	05700-002-23-89
	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 affect the performance of the dishmachine. It is strongly recommended that teflon thread tape be applied conservatively to threads when joining components together. It is not advised to use thread sealing compounds, or "pipe dope," as they can be ejected from the threads during the tightening process and become lodged in key components.



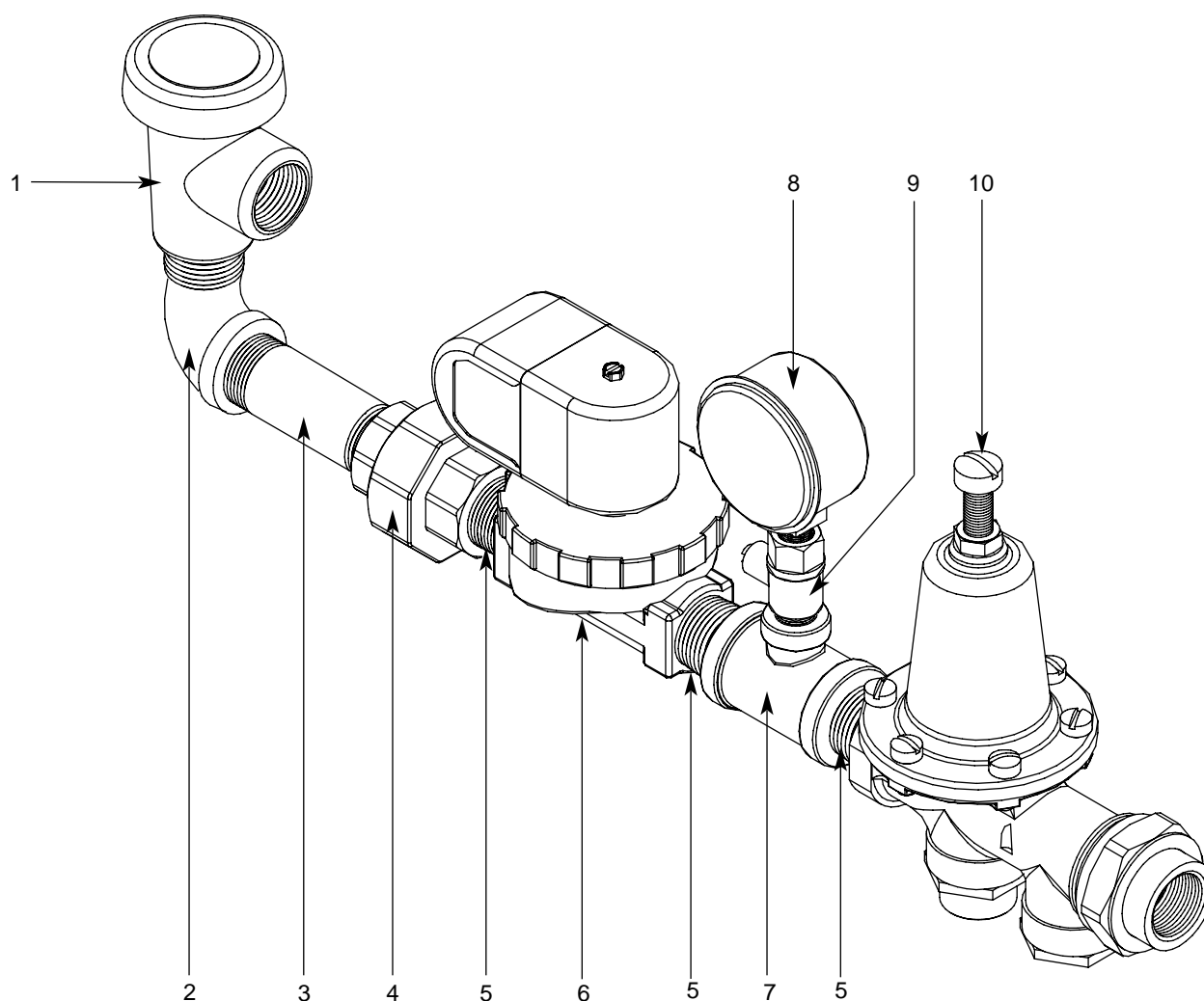
Rinse Injector Gasket
2 per machine
05330-111-42-81



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

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

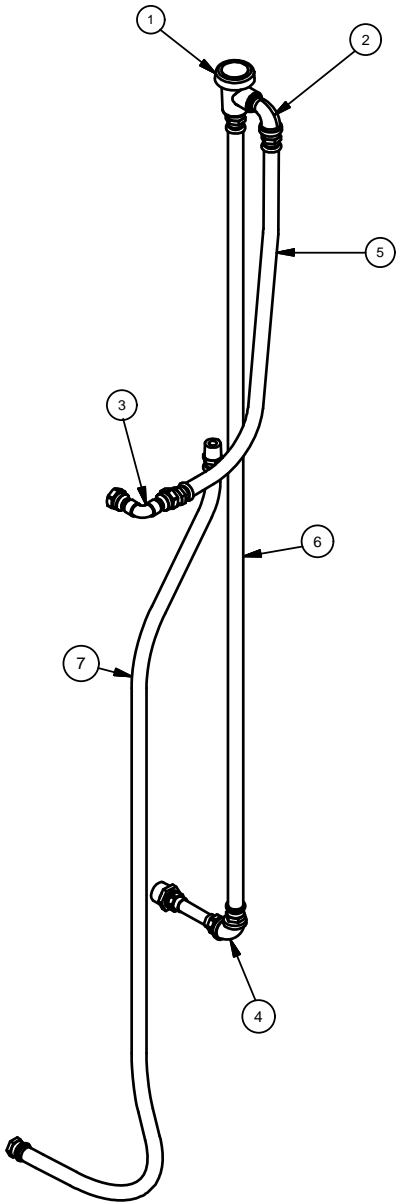
PRESSURE REGULATOR INCOMING PLUMBING (NOBLE HT-180 HH)



ITEM	QTY	DESCRIPTION	PART NUMBER
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

PARTS

INCOMING PLUMBING (NOBLE HT-180 HH VENTLESS)

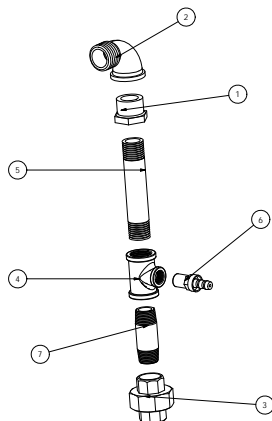


RINSE INJECTOR
09515-004-22-73

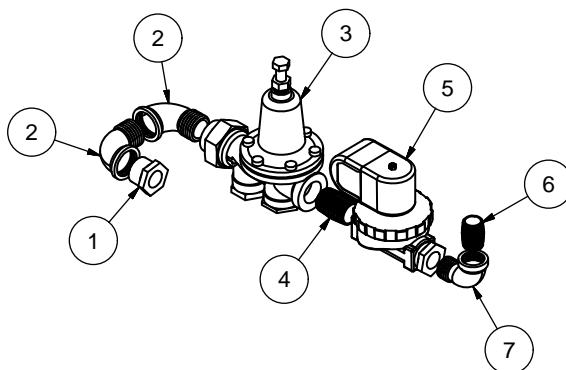


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Vac Breaker 1/2 Brass	04820-003-06-13
2	1	Elbow, 90 Degree 1/2 Street Brass	04730-206-08-00
3	1	W-Plumbing, Rinse Injector	05700-004-19-83
4	1	A-Plumbing, Outlet w/ Heat Exc.	05700-004-19-12
5	1	Hose, 1/2" ID X 24" LG Red	05700-004-19-89
6	1	Hose, 1/2" ID X 67" LG Red	05700-004-19-99
7	1	Hose, 1/2" ID X 69" LG Blue	05700-004-20-00

INCOMING PLUMBING (NOBLE HT-180 HH VENTLESS)



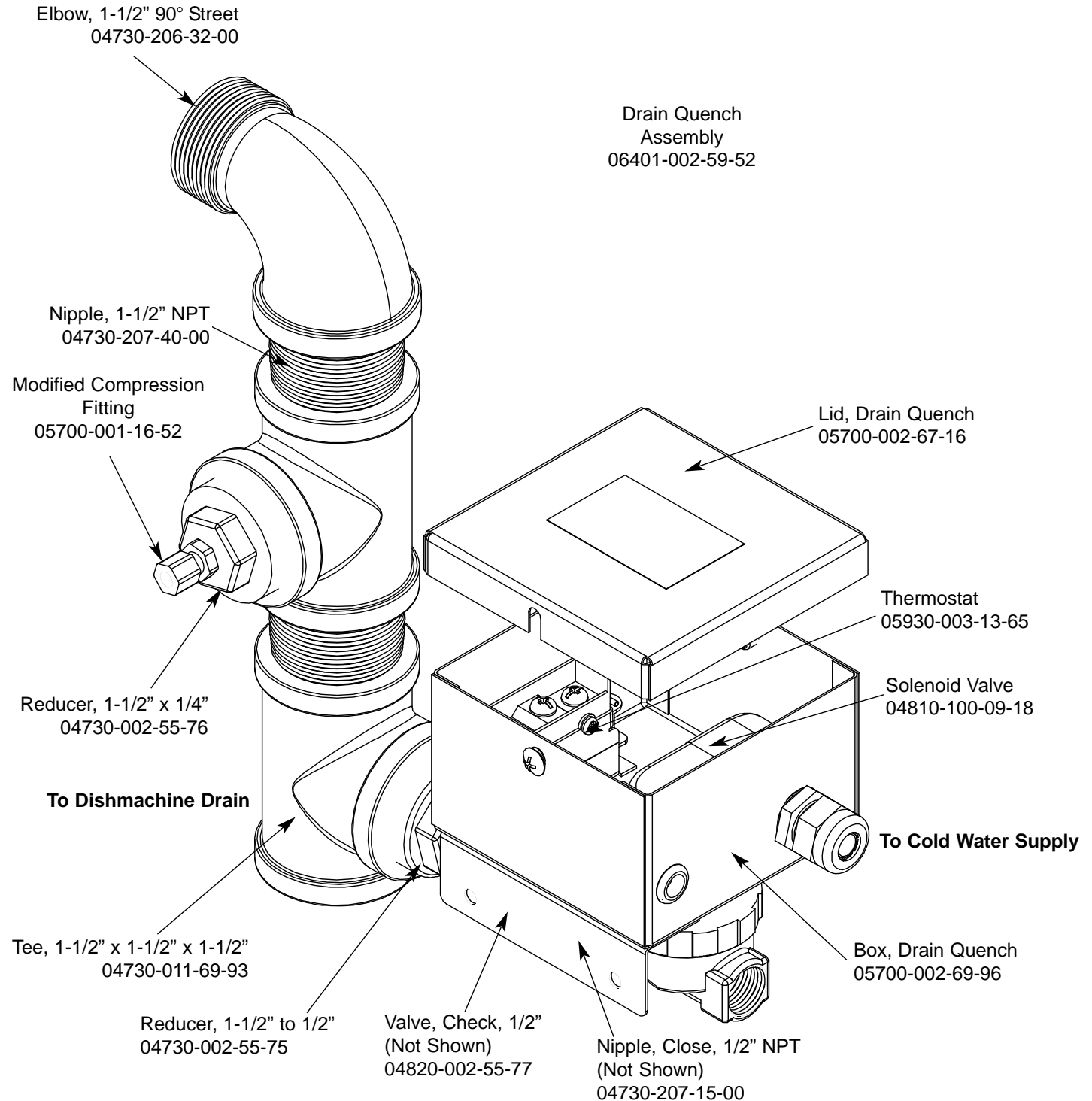
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bushing, Hex 3/4"M to 1/2" Brass	04730-002-56-27
2	1	Elbow, 3/4 Street Brass 90 Degrees	04730-206-04-34
3	1	Union, 1/2" X 1/2" Brass	04730-003-62-44
4	1	Tee, 1/2 FNPT X 1/2 FNPT 1/4 FNPT	04730-002-22-56
5	1	Nipple, Brass 1/2" X 4" NPT	04730-207-04-00
6	1	Fitting, 1/4 Barb 1/4 MNPT Swivel	04730-011-95-41
7	1	Nipple, Brass 1/2" X 2" Long Brass	04730-207-19-00



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bushing, Hex 3/4"M to 1/2" Brass	04730-002-56-27
2	3	Elbow, 3/4 Street Brass 90 Degrass	04730-206-04-34
3	1	Regulator, Pressure 3/4	06685-011-58-22
4	1	Nipple, 3/4 NPT X 1-3/8 Closed Brass	04730-207-34-00
5	1	Valve, 3/4" - 220V Solenoid	04810-100-03-18
6	1	Nipple, 1/2 Closed Brass	04730-207-15-00
7		Elbow, 90 Degree 1/2 Street Brass	04730-206-08-00

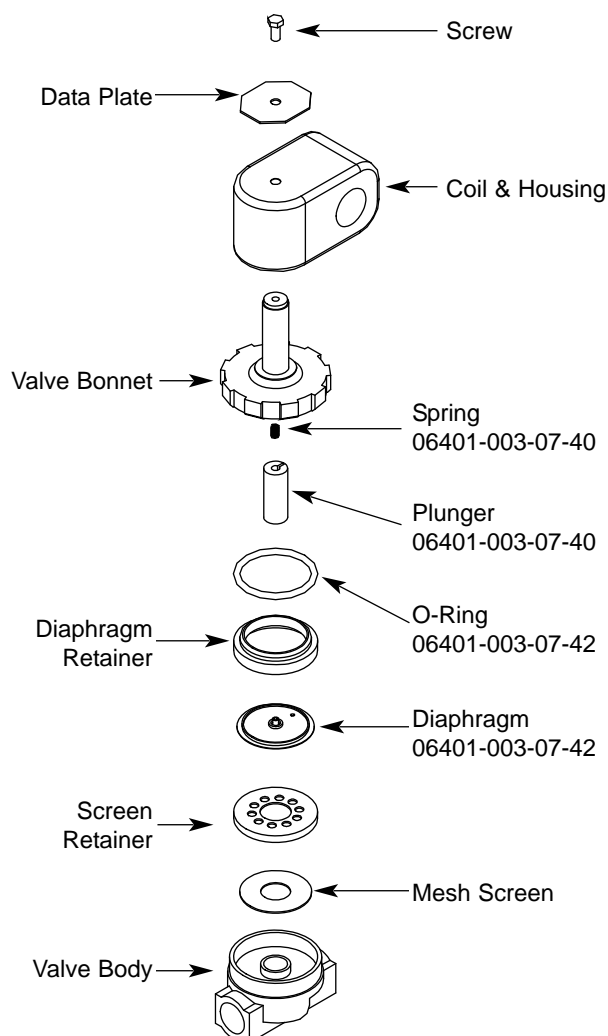
PARTS

DRAIN QUENCH ASSEMBLY



From the existing drain, attach 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 thread tape as required to prevent any leaks.

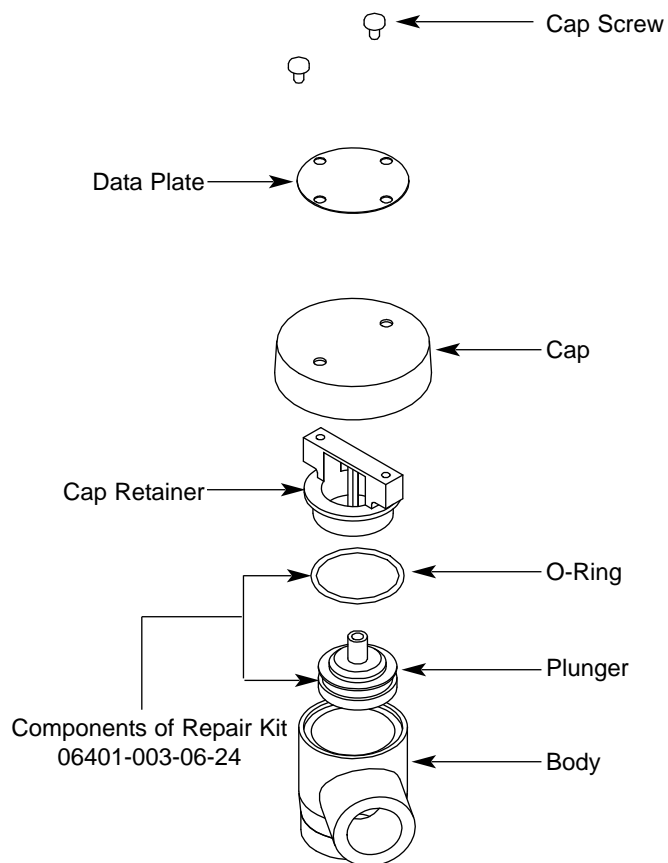
3/4" SOLENOID VALVE & 3/4" VACUUM BREAKER REPAIR PARTS KITS



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

Coil & Housing only
06401-003-07-44

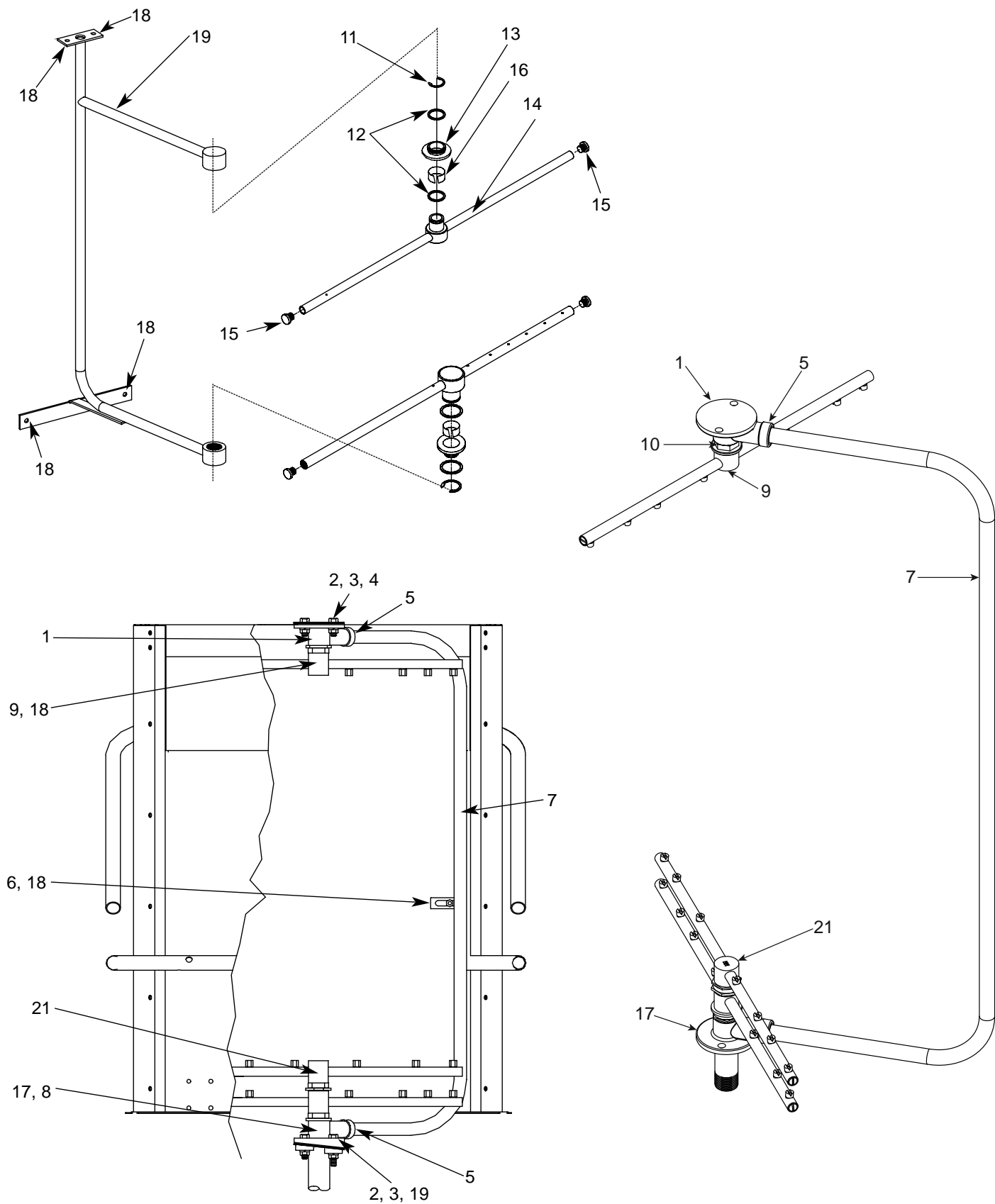
1/2" Complete 240 Volt Solenoid Valve Assembly
(LT ONLY)
04810-003-71-56



Complete Vacuum Breaker Assembly
04820-002-53-77

PARTS

WASH & RINSE ARM/MANIFOLD ASSEMBLIES

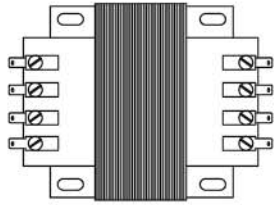


WASH & RINSE ARM/MANIFOLD ASSEMBLIES (CONTINUED)

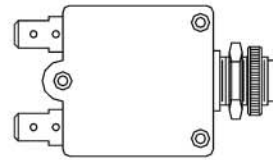
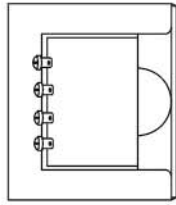
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Upper Manifold	05700-031-34-82
2	4	Nut, 3/8"-16 S/S Hex	05310-276-01-00
3	4	Lockwasher, 3/8"	05311-276-01-00
4	2	Bolt, Hex 3/8"-16 x 7/8" Long	05306-011-36-95
5	2	O-Ring	05330-111-35-15
6	1	Positioning Bracket, Manifold Tube	05700-011-34-63
7	1	Tube, Wash Manifold	05700-031-92-58
8	2	Gasket, Manifold	05700-111-35-03
9	1	Wash Arm Assembly	05700-004-13-13
10	1	Bearing Assembly	05700-021-35-97
	1	Wash Arm Assembly, 415V (not shown)	05700-021-63-81
	1	Wash Arm Weldment, 415V	05700-021-63-42
	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	03120-004-12-13
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
	1	Wash Arm, Double Assembly, 415V (not shown)	05700-002-46-86

PARTS

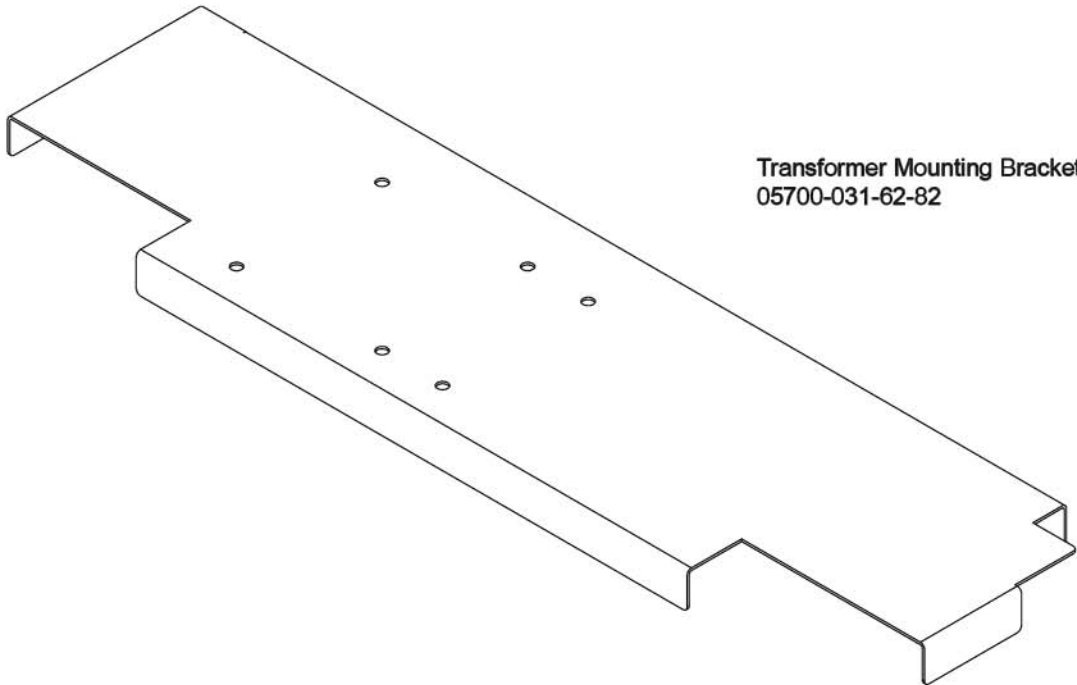
460 VOLT MACHINE TRANSFORMER MOUNTING BOX



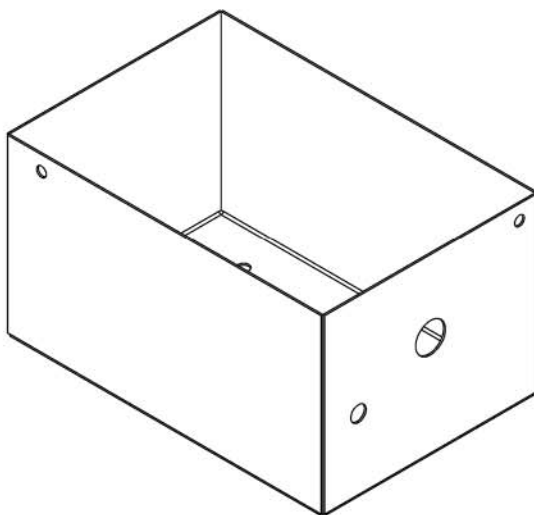
460V Transformer
05950-111-65-93



2 Amp Circuit Breaker
05925-111-64-18

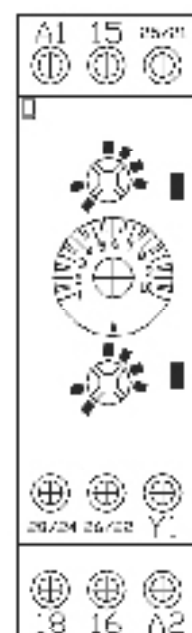


Transformer Mounting Bracket
05700-031-62-82

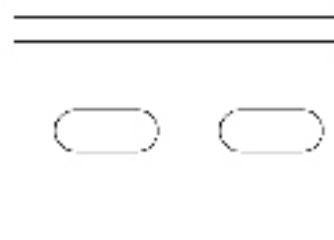


Transformer Mounting Box
05700-002-10-01

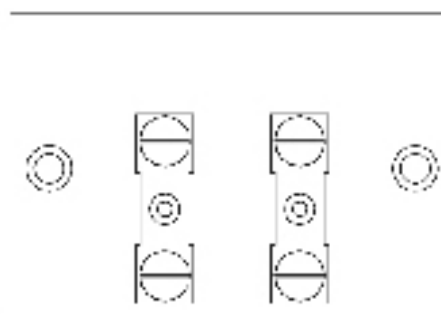
Transformer Mounting Box Top (not shown)
05700-000-78-53



Delay Timer
05945-011-65-44



2" Din Rail
05700-002-38-09

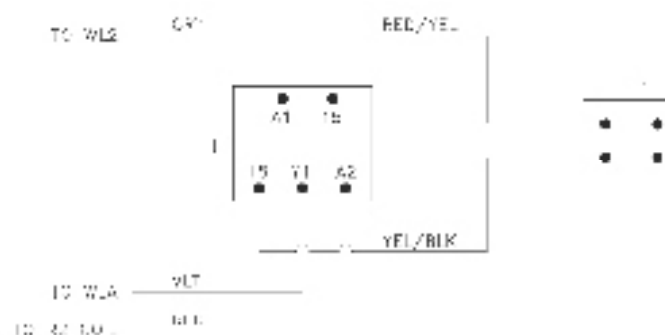


Terminal Board
05940-011-84-41

NOBLE EXHAUST FAN HOOKUP

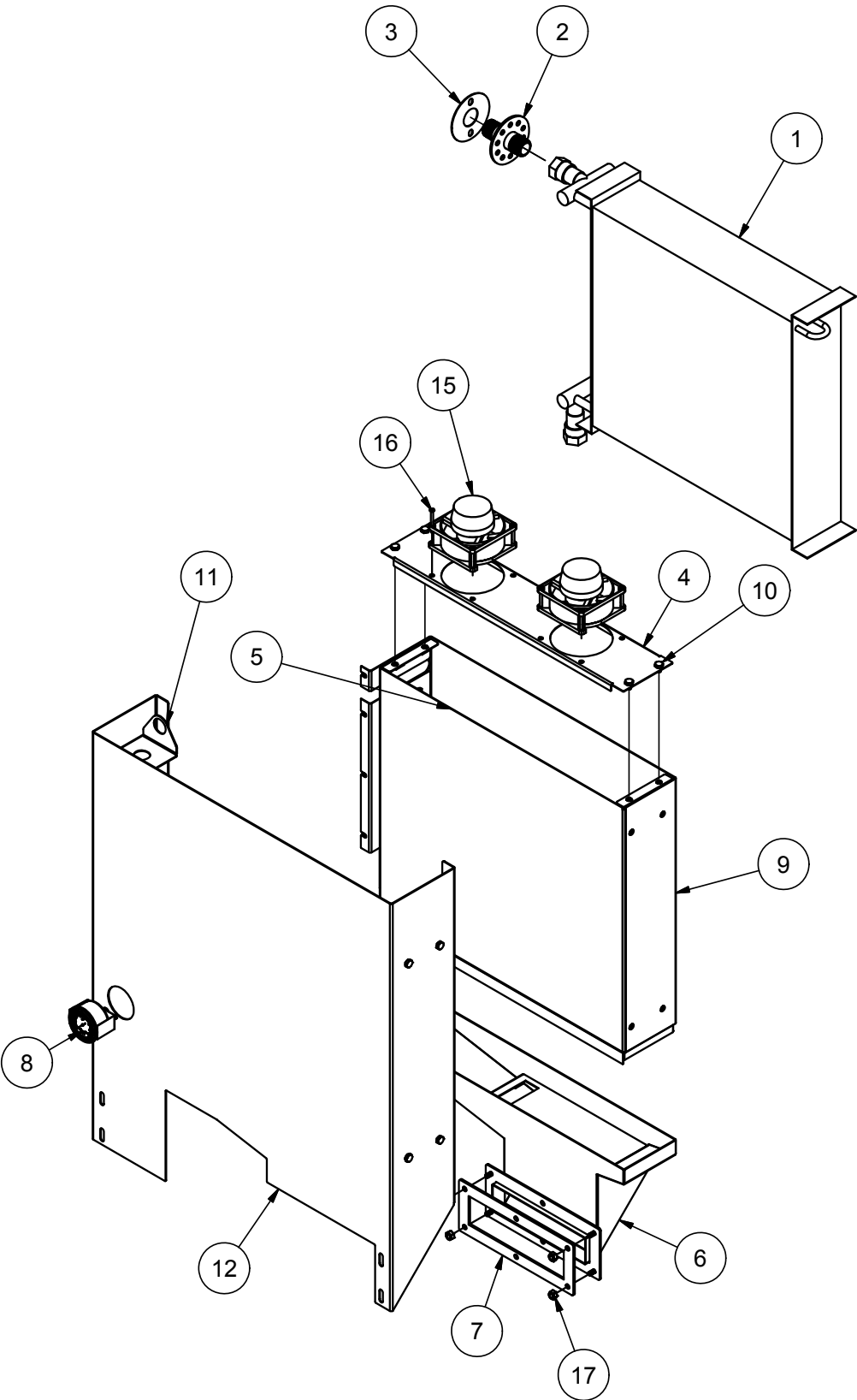
LEGEND

T TIMER
TB TERMINAL BOARD



45015-T12-56-41

NOBLE HT-180 HH VENTLESS AND ENERGY RECOVERY SYSTEM ASSEMBLY

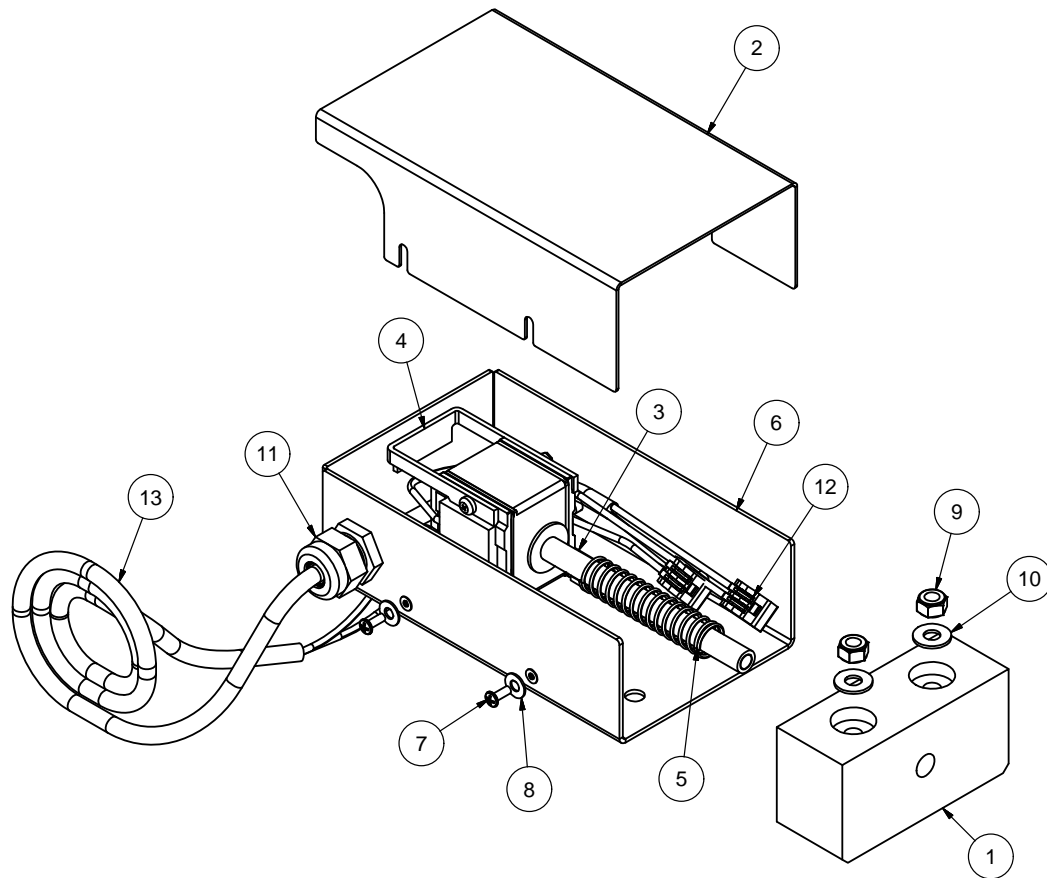


NOBLE HT-180 HH VENTLESS AND ENERGY RECOVERY SYSTEM ASSEMBLY

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Coil, Heat Exchanger	04420-004-19-61
2	1	Inlet, Cold Water	05700-004-19-01
3	1	Ring, Water Inlet	05700-004-19-24
4	1	Plate, Fan Mounting	05700-004-18-07
5	1	Upper Shroud	05700-004-18-06
6	1	Exhaust Box	05700-004-18-04
7	1	Gasket, Heat Exchanger	05330-004-18-22
8	1	Gauge	06680-011-86-42
9	1	Coil Box Back	05700-004-18-03
10	12	Bolt, 1/4-20 X 3/8 Hex	05305-274-20-00
11	1	Bracket, Vacuum Breaker	05700-004-18-91
12	1	Shroud, Heat Exchanger	05700-004-18-92
13	6	Nut, Lock 10-24 S/S Hex w/ Nylon	05310-373-01-00
14	6	Washer, Flat	05311-173-02-00
15	2	Fan, 3.62 Square, 85-236V AC Corrosion Resistant	05999-004-19-46
16	8	Screw, 6-32 X 1 1/2 Long	05305-003-11-33
17	4	Nut, Lock 1/4-20 Hex Nylon Insert	05310-374-01-00

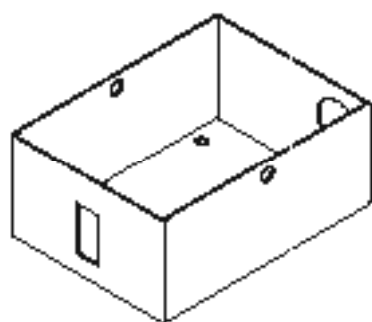
PARTS

NOBLE HT-180 HH VENTLESS DOOR INTERLOCK

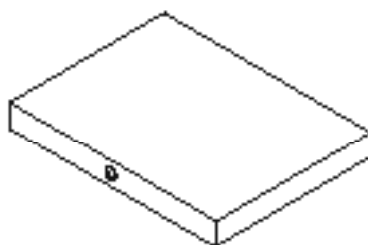


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Guide Block, Door Lock	09330-004-22-72
2	1	F-Cover, Door Lock Mounting	05700-004-22-80
3	1	W-Rod, Interlock Weldment	05700-004-23-15
4	1	Soleniod, Horizontal 1" Push	04820-004-24-11
5	1	Spring, Comp.	05935-004-24-10
6	1	W-Base, Door Interlock Box	05700-004-24-25
7	8	Screw 3/8 Pan Head	05305-171-02-00
8	8	Washer, Flat #10	05311-173-02-00
9	2	Locknut, 1/4-20	05310-374-01-00
10	2	Washer, S/S 1/4-20 I.D.	05311-174-01-00
11	1	Fitg, 3216 Liqtite Blk	05975-011-59-50
12	2	Connector, 2-Conductor	05935-004-03-49
13	1	Cord, SJ 55" LG	05700-004-24-31

DOOR INTERLOCK/DOOR OVERRIDE INSTRUCTIONS



Door Interlock Box Bottom
05700-001-21-26



Door Interlock Box Cover
05700-001-21-27

Other Door Interlock
components (not shown):

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

Solenoid, Electrical Interlock Option
04810-100-81-33

Relay
05845-111-47-51



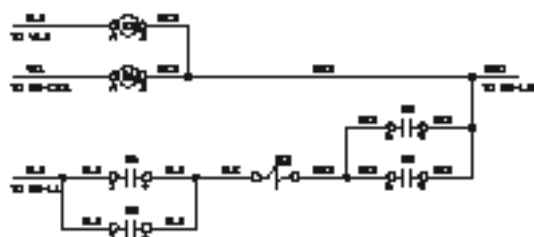
Latch access hole



The following instructions are for NOBLE HT-180 HH models equipped with the Door Interlock option. These instructions should only be used if the door interlock fails to unlatch and the doors are unable to be opened.

1. To manually disengage, find the latch access hole.
2. Gently insert the tip of a screwdriver or other metal utensil into the access hole, making contact with the latching arm.
3. Disengage the interlock by pushing the latching arm back with a minimal amount of force.
4. The doors should now open.

NOBLE DOOR INTERLOCK OPTION



LEGEND

R1 RINSE RELAY
R2 WASH RELAY
S1 SAFETY DOOR INTERLOCK SOLENOID

05700-001-21-26

NOBLE 460V DOOR INTERLOCK OPTION



LEGEND

R1 RINSE RELAY
R2 WASH RELAY
S1 SAFETY DOOR INTERLOCK SOLENOID

PARTS

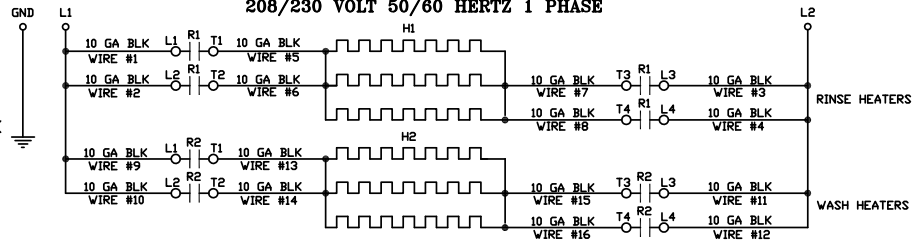
SOLID STATE NOBLE HT-180 HH (TOP MOUNT CONTROLS), 208-230V, 60HZ, 1 & 3 PHASE

LEGEND

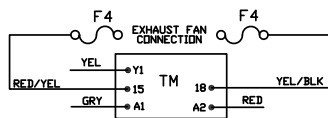
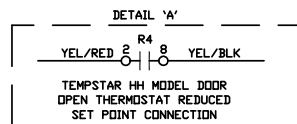
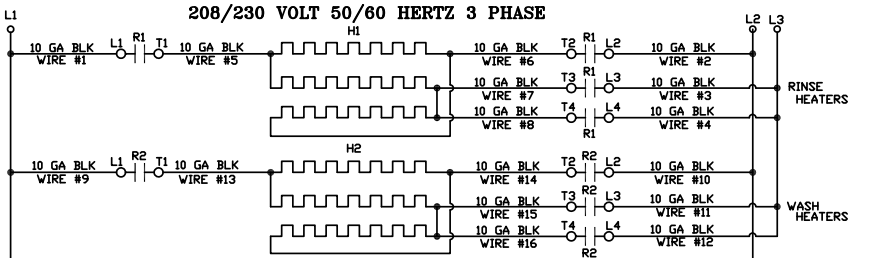
L1 L2 L3 POWER DISTRIBUTION BLOCK
 GND GROUND
 H1 RINSE HEATER
 H2 WASH HEATER
 M1 WASH MOTOR
 R1 RINSE HEATER CONTACTOR
 R2 WASH HEATER CONTACTOR
 R3 WASH MOTOR CONTACTOR
 R4 CONTROL RELAY
 F1 CONSTANT VOLTAGE CONNECTION
 F2 DETERGENT DISPENSER FUSE BLOCK
 F3 RINSE DISPENSER FUSE BLOCK
 F4 EXHAUST FAN FUSE BLOCK
 S1 POWER SWITCH
 S2 DOOR SWITCH
 S3 AUTO/MANUAL (DELIME) SWITCH
 S4 CYCLE SELECTOR
 E1 POWER LIGHT
 E2 HEATER OVERLOAD LIGHT
 E3 CYCLE LIGHT
 HLTS WASH HEATER HIGH LIMIT
 TS1 RINSE HEATER THERMOSTAT
 TS2 WASH HEATER THERMOSTAT
 HP HIGH WATER LEVEL PROBE
 WL WATER LEVEL CONTROL
 FS RINSE/FILL SOLENOID
 TM TIMER BOARD
 PB1 RINSE TEMP PROBE
 PB2 WASH TEMP PROBE
 RF RECOVERY FANS
 DI DOOR INTERLOCK

ELECTRICAL DIAGRAM

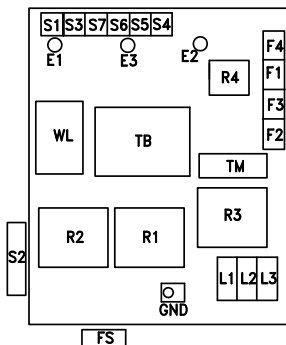
208/230 VOLT 50/60 HERTZ 1 PHASE



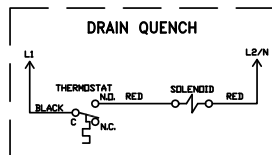
208/230 VOLT 50/60 HERTZ 3 PHASE



CONTROL BOX LAYOUT



DRAIN QUENCH



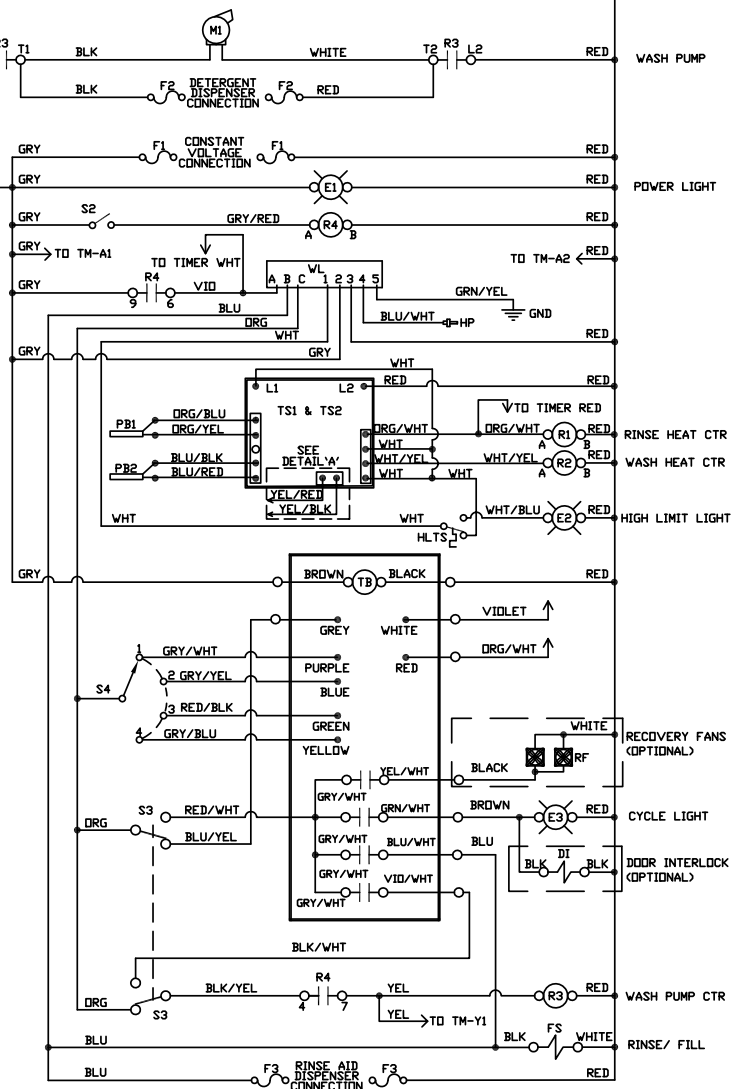
DIP SWITCH SETTINGS

TEMPSTAR	ON	1	2	3	4	5	6	7	8
	↑	0	0	0	0	0	0	X	X

TEMPSTAR HH	ON	1	2	3	4	5	6	7	8
	↑	0	X	X	X	0	0	0	X

WITH HEAT RECOVERY	ON	1	2	3	4	5	6	7	8
	↑	0	0	0	0	0	0	X	X

HH WITH HEAT RECOVERY	ON	1	2	3	4	5	6	7	8
	↑	0	X	0	0	0	0	X	X

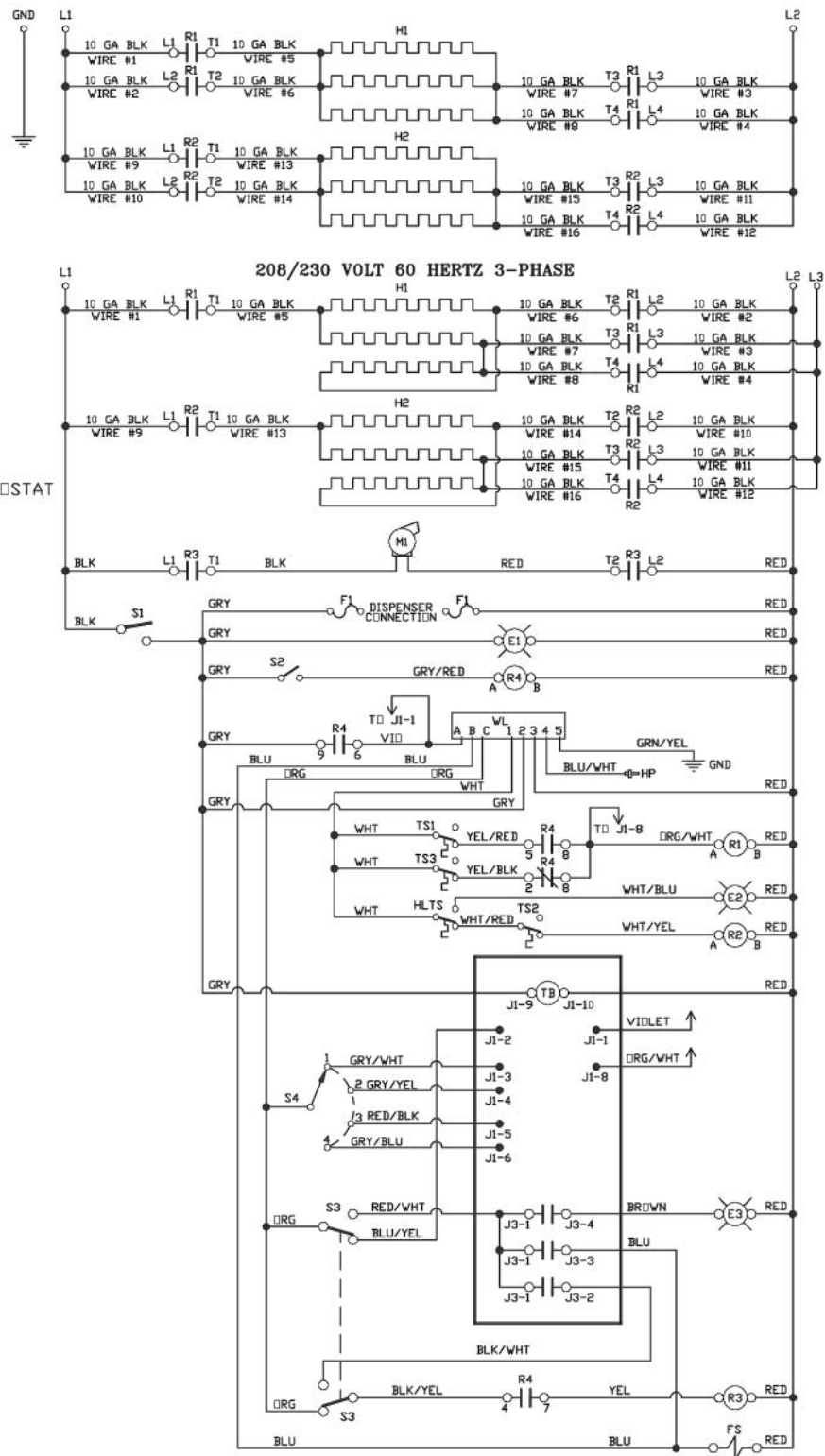


ELECTRICAL SCHEMATICS

NOBLE HT-180 HH (UNIVERSAL TIMER), 208-230V, 60HZ, 1 & 3 PHASE

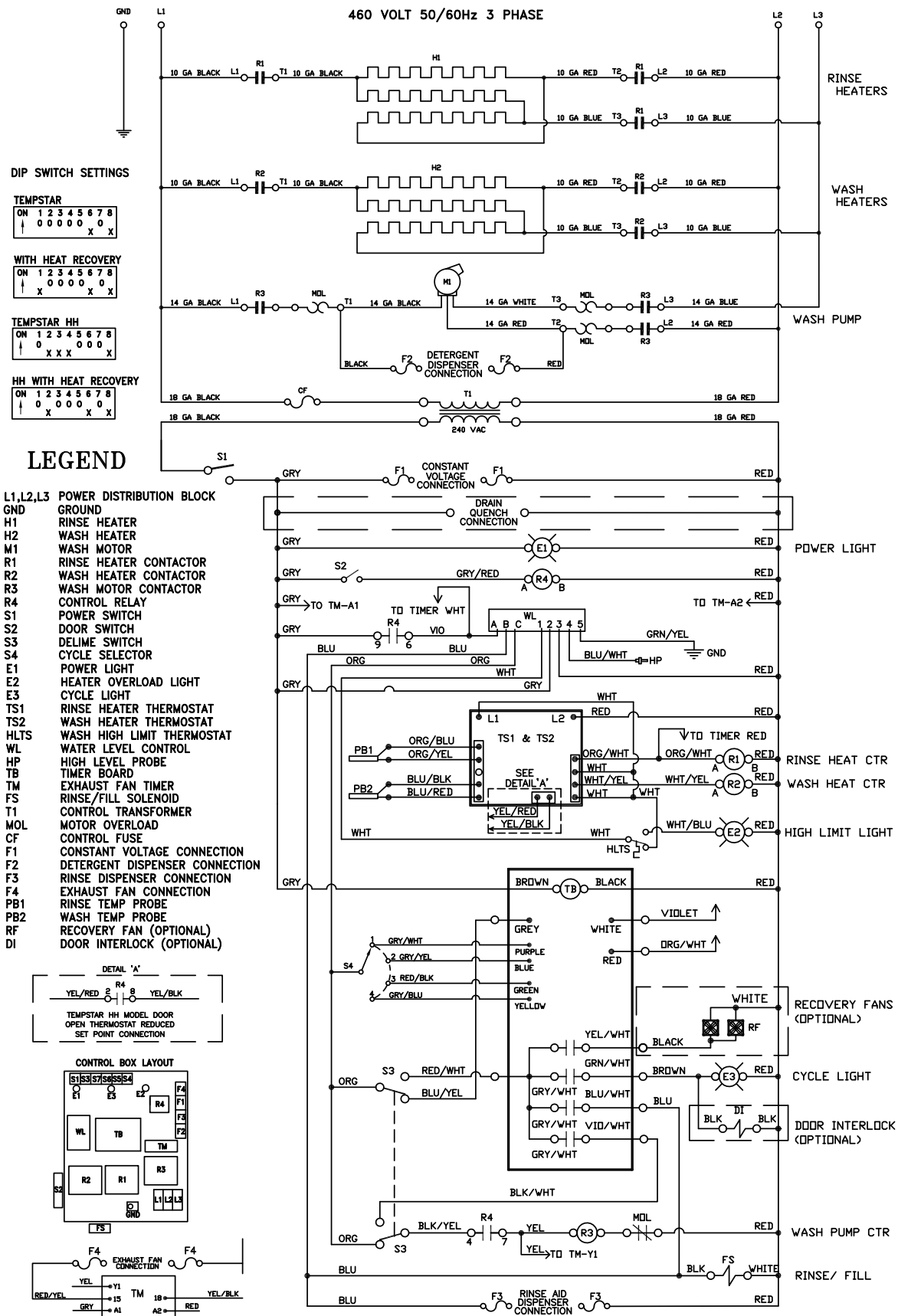
LEGEND

L1 L2 L3	RINSE HEATER
GND	GROUND
H1	RINSE HEATER
H2	WASH HEATER
M1	WASH MOTOR
R1	RINSE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
F1	DISPENSER FUSE BLOCK
S1	POWER SWITCH
S2	DOOR SWITCH
S3	AUTO/MANUAL (DELIME) SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
HLTS	WASH HEATER HIGH LIMIT THERMOSTAT
TS1	RINSE HEATER THERMOSTAT 1
TS2	WASH HEATER THERMOSTAT
TS3	RINSE HEATER THERMOSTAT 2
HP	HIGH WATER LEVEL PROBE
WL	WATER LEVEL CONTROL
FS	RINSE/FILL SOLENOID
TB	TIMER BOARD



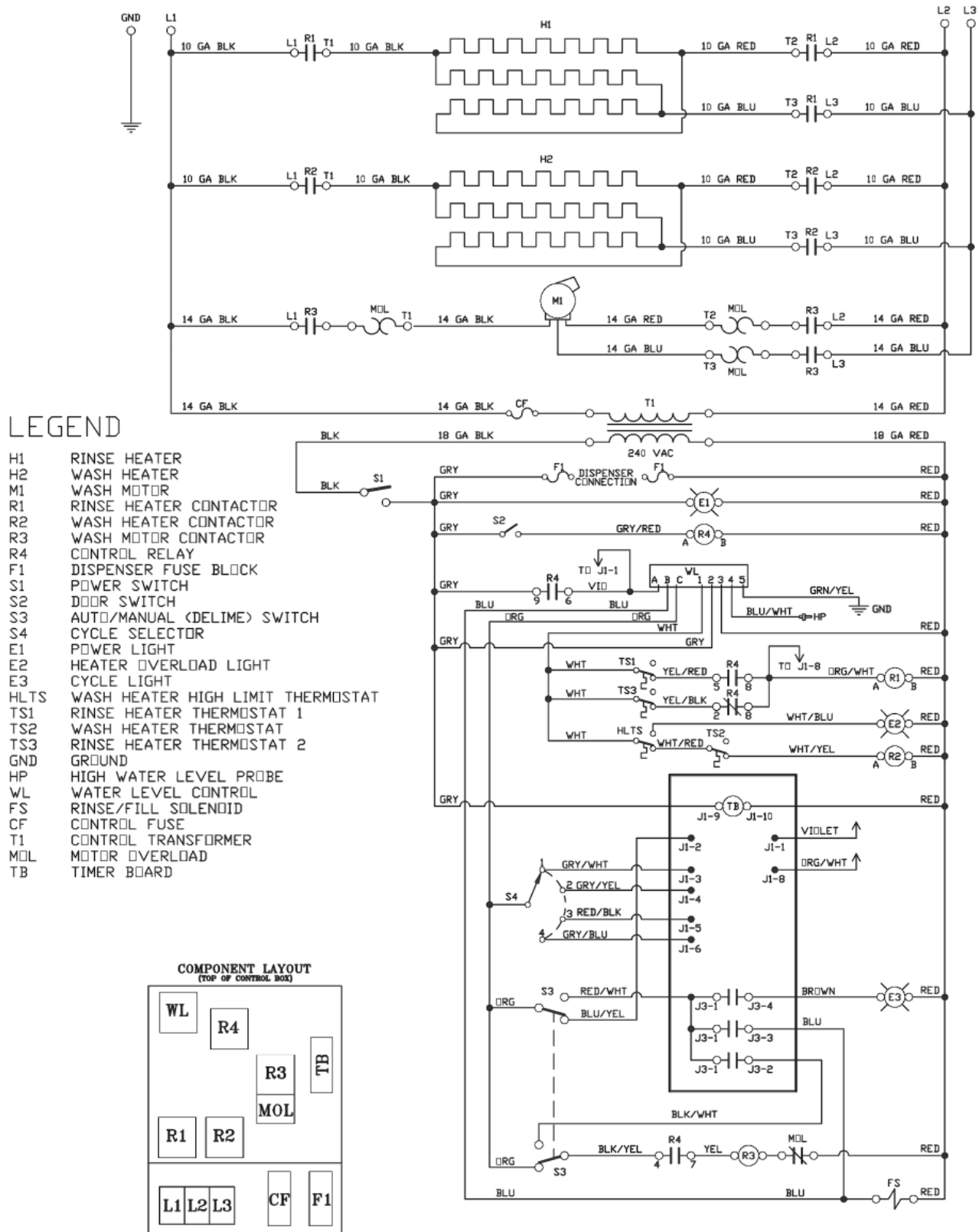
ELECTRICAL SCHEMATICS

SOLID STATE NOBLE HT-180 HH (TOP MOUNT W/CYCLE SWITCHES), 460V, 60HZ, 3 PHASE



ELECTRICAL SCHEMATICS

NOBLE HT-180 HH (UNIVERSAL TIMER), 460V, 60HZ, 3 PHASE



ELECTRICAL SCHEMATICS

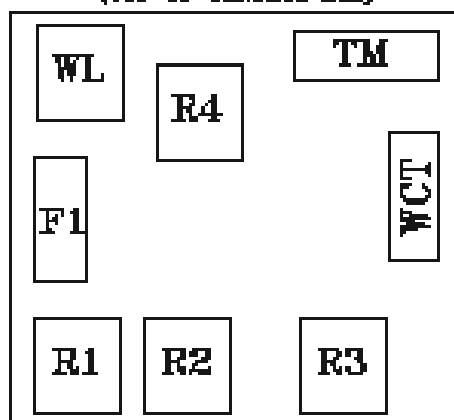
NOBLE HT-180 HH 208-230V, 60HZ, 1 & 3 PHASE

ELECTRICAL DIAGRAM

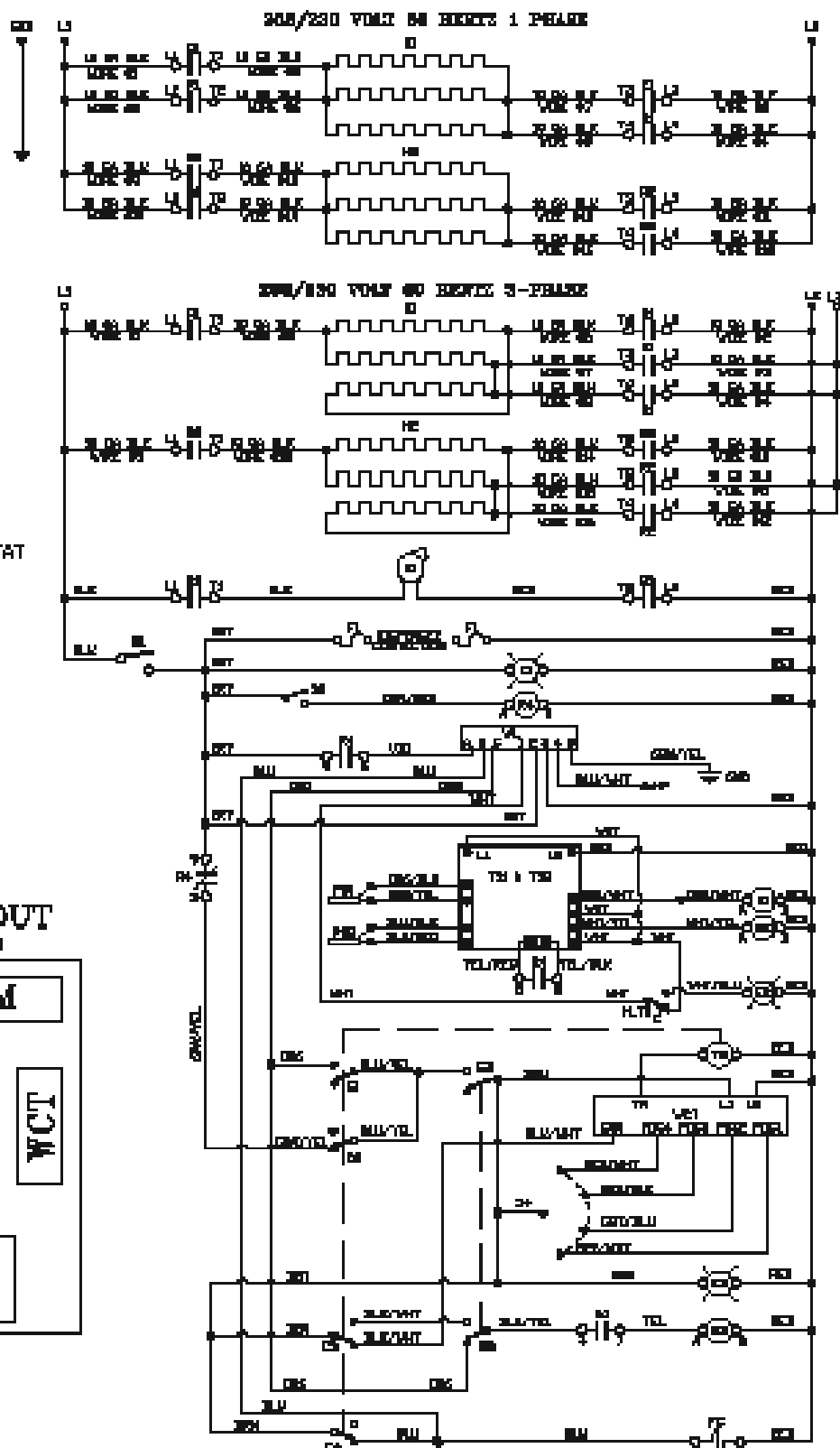
LEGEND

H1	RODGE HEATER
H2	WASH HEATER
M1	WASH MOTOR
R1	RODGE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
F1	DISPENSER FUSE BLOCK
S1	POWER SWITCH
S2	DOOR SWITCH
S3	AUTO/MANUAL (OELINE) SWITCH
S4	CYCLE SELECTOR SWITCH
S5	CYCLE SWITCH
S6	AUTO START RESET SWITCH
S7	WASH CYCLE SWITCH
S8	RODGE/FILL SWITCH
L1	POWER LIGHT
L2	HEATER OVERLOAD LIGHT
L3	CYCLE LIGHT
HLT1	WASH HEATER HIGH LIMIT THERMOSTAT
T1	RODGE HEATER THERMOSTAT
T2	WASH HEATER THERMOSTAT
GND	GROUND
HP	HIGH WATER LEVEL PROBE
WL	WATER LEVEL CONTROL
TM	TIMER MOTOR
F2	RODGE/FILL SOLENOID
WCT	WASH CYCLE TIMER
P1	RODGE THERMOSTAT PROBE
P2	WASH THERMOSTAT PROBE

COMPONENT LAYOUT (TOP OF CONTROL BOX)

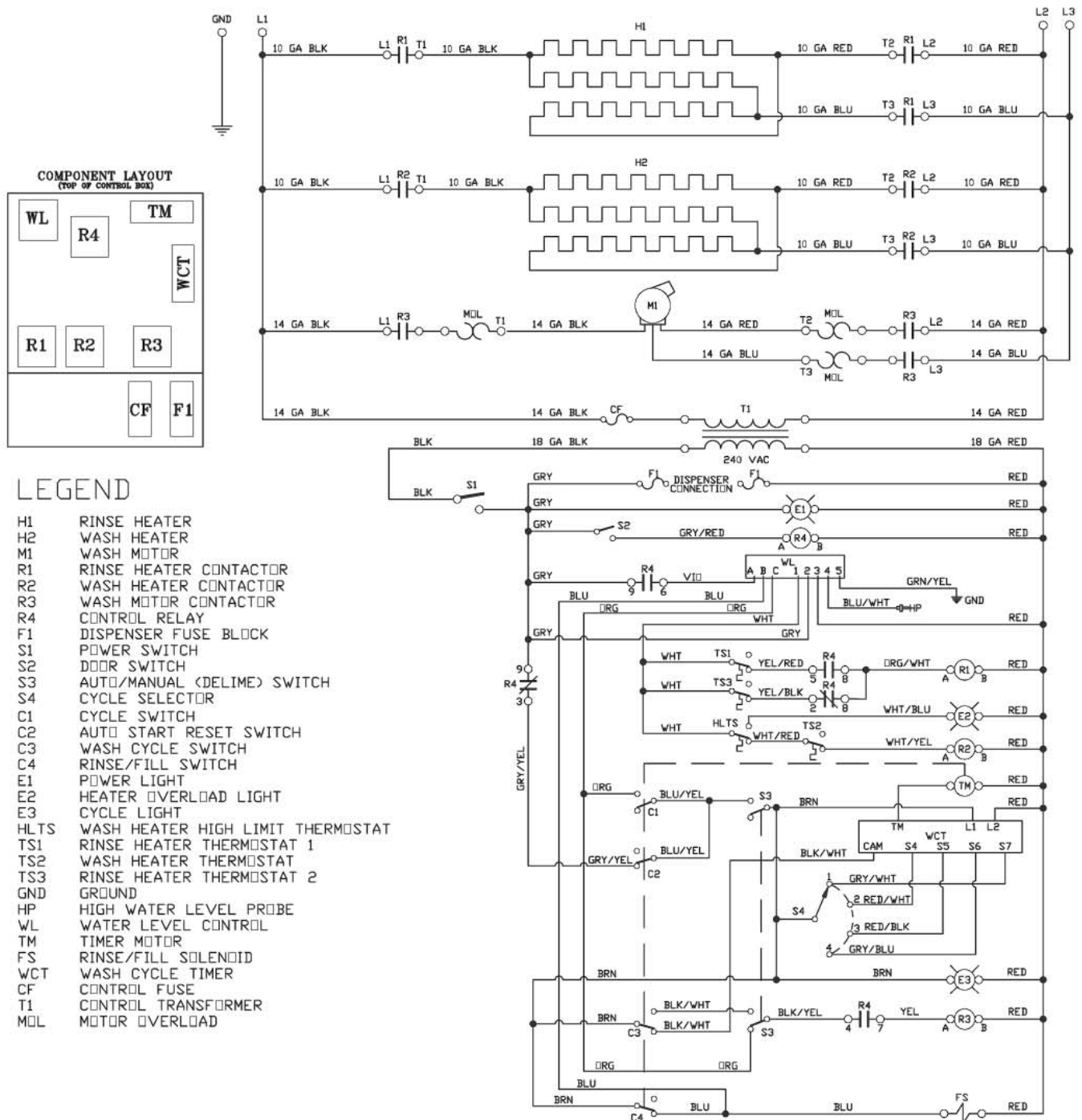


1100-000-01-34-1



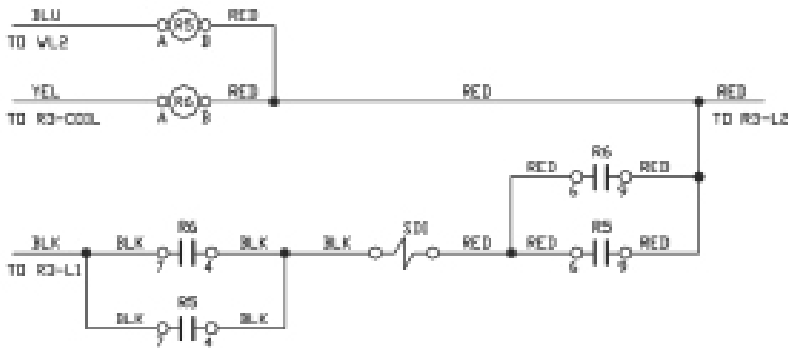
ELECTRICAL SCHEMATICS

NOBLE HT-180 HH, 460V, 60HZ, 3 PHASE



DOOR INTERLOCK OPTION

NOBLE DOOR INTERLOCK OPTION

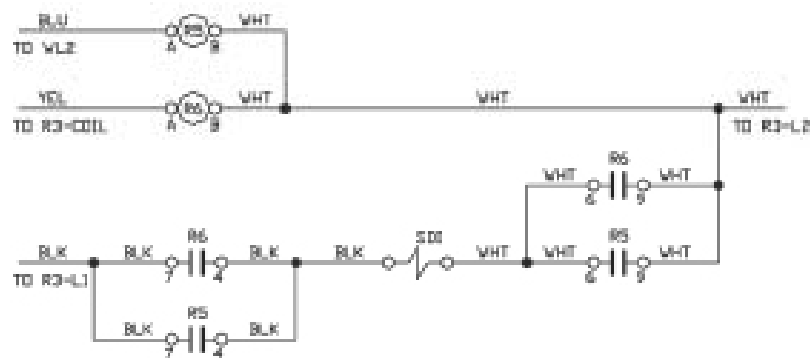


LEGEND

R5 RINSE RELAY
R6 WASH RELAY
SDI SAFETY DOOR INTERLOCK SOLENOID

09905-002-35-85a

NOBLE DOOR INTERLOCK OPTION

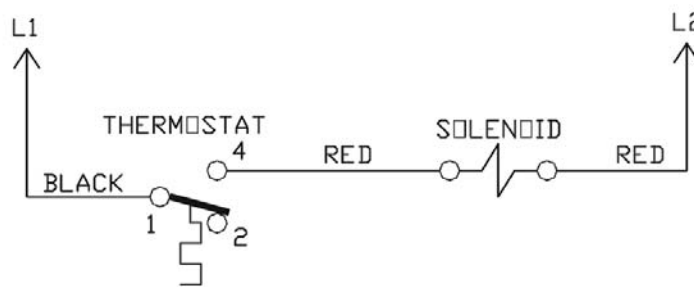


LEGEND

R5 RINSE RELAY
R6 WASH RELAY
SDI SAFETY DOOR INTERLOCK SOLENOID

09905-002-55-78a

DRAIN QUENCH SYSTEM



CONNECT BLACK WIRE TO MOTOR CONTACTOR - L1 WITH PIGGYBACK TERMINAL PROVIDED

CONNECT WHITE WIRE TO MOTOR CONTACTOR - L2 WITH PIGGYBACK TERMINAL PROVIDED



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