PRO IV LIQUID DETERGENT & LIQUID RINSE DISPENSER
INSTALLATION INSTRUCTIONS
REVISION #5

STEP #1. MOUNTING

1. Choose a location where the unit is visible to the machine operator.
2. Locate the unit out of the direct path of heat and steam.
3. Locate as near as possible to the power source.
4. Wall mounting - Use the drilling template provided.
5. Surface mounting (optional)-order the Surface Mount Kit Part #VOPSURFKIT001

STEP #2. PROBE PLACEMENT

1. Locate on side of tank, approximately 3" - 4" from the bottom of the wash tank and out of corners if possible. Try to locate it between the detergent injection point and the circulation pump intake.
2. Probes should never be installed through the bottom of the wash tank. Probes must be installed below the water level.
3. Try to utilize an existing hole in the side of the tank.
4. If no suitable hole exists, one will need to be made. The probe diameter is 7/8".

STEP #3. LIQUID DETERGENT HOOKUP: THE DETERGENT PUMP IS ON THE RIGHT AND HAS 1/4" TUBING

1. Pump hookup: Loosen the compression nuts at the ends of the squeeze tube.
2. On the supply (left) side of the pump, insert the 1/4" tubing all the way through the compression nut so that it bottoms in the compression fitting. Hand tighten the nut. Make this line long enough to reach the bottom of the supply drum and long enough that someone in the kitchen can make the supply container accessible to change it when it is empty.
3. Break apart the sections of the snap together dip tube and snap them together. Use two sections for a one-gallon jug and three for a bucket. Snap the fitting on the top. Remove the compression nut and slide it up the supply tubing. Insert the tubing into the compression fitting and push it through until it is just short of the bottom of the tube. Hand tighten the compression nut.
4. Cut a piece of supply tubing long enough to reach from the output (right) side of the pump to the injection point. Push the tubing through the compression nut on the right side of the pump until it bottoms in the compression fitting. Hand tighten the nut. Run the output line to the chosen injection point. A hole plug injection assembly is included for detergent injection.
5. The hole plug injection assembly should be installed just above the water line on the side of the wash tank. Try to place your injection point on the opposite side of the circulating pump intake. This is so that the detergent will be drawn across the tank for better mixing. If an existing hole cannot be found or used, then a hole will need to be made. The hole plug injection assembly has a 7/8" diameter (same as probe).

STEP #4. RINSE PUMP HOOKUP THE RINSE PUMP IS THE ONE ON THE LEFT AND HAS 1/8" TUBING

1. The rinse injection point should be in the rinse water supply line, between the wash tank and the machine's vacuum breaker. It should be as high on the water line as possible, but not higher than the PRO IV's pressure switch, if so equipped.
2. Check to see if there is an injection port in the rinse arm. If a hole does not exist or is in a bad location, you will need to drill your own. Select a suitable location, drill a 1/4" hole, and attach the 1/8" FPT saddle bracket so that the holes line up.

INJECTION POINT FOR DUAL INTERNAL TRANSFORMER MODEL (NO PRESSURE SWITCH)

A. Thread the 1/8" NPT straight brass fitting into the port or saddle bracket. Use Teflon tape to prevent leaking.
B. Cut a piece of 1/8" supply tubing approximately 12" long. Feed about 6" of the 1/8" tubing through the straight fitting, into the rinse arm, and toward the wash tank.

C. Connect the white check valve to the other end of the tubing. The flow indication arrow should point toward the injection assembly. Hand tighten the compression nut.
D. Cut a line long enough to run from the output (right) side of the pump to the check valve. Hand tighten the compression nut.

INJECTION POINT FOR SINGLE TRANSFORMER (INTERNAL OR EXTERNAL) AND PRESSURE SWITCH SETUP

A. Thread the 1/8" NPT end of the brass injection assembly into the port or saddle bracket. Use Teflon tape to prevent leaking.
B. Cut a piece of 1/8" supply tubing approximately 12" long. Feed about 6" of the 1/8" tubing through the injection assembly, into the rinse arm, and toward the wash tank. Hand tighten the compression nut.
C. Connect the white ball check valve to the other end of the tubing. The flow indication arrow should point toward the injection assembly. Hand tighten the compression nut.
D. Cut a line long enough to run from the output (right) side of the pump to the check valve. Hand tighten the compression nuts.
E. Cut a piece of tubing long enough to reach from the pressure switch to the pressure switch port (elbow) on top of the injection assembly. Hand tighten both compression nuts.

NOTE: If you need to jump the pressure switch, instructions for doing this are given in the pages that cover the wiring.

3. Supply side - Cut a piece of supply tubing long enough to reach from the bottom of the supply container to the supply (left) side of the pump.
4. Break apart the sections of the snap together dip tube and snap them together. Use two sections for a one-gallon jug and three sections for a bucket. Snap the fitting on top. Remove the compression nut and slide it up the supply tubing. Insert the tubing into the compression fitting and push it though until it is just short of the bottom of the tube. Hand tighten the compression nut.

STEP #5. ELECTRICAL

****CAUTION**** Before doing any wiring, turn OFF the circuit breaker to the dish machine!! Be certain you comply with the local wiring code!! Never connect any voltage to the probe leads as this will damage the control board and void the warranty.

1. Keep in mind that the PRO IV is a 24-volt AC unit. Using a voltmeter, determine the voltage that you will be wiring into your transformer. Turn the dish machine off. Confirm that the power is OFF with the voltmeter. Trip the breaker that controls power to the machine. If you do not have a voltmeter for this installation, you should get one before attempting any wiring.
2. Make sure the PRO IV circuit board power switch is in the OFF position.
3. For the correct wiring combinations, refer to the wiring page in these instructions that covers both internal and external transformer hookup as well as board adjustments.

STEP #7A. CONTROL SETUP - RINSE (Refer to circuit board diagram)

1. Turn dish machine breaker on, turn dish machine ON.
2. Turn circuit board power switch ON.
3. With power to the unit present, press and hold the prime button until the chemical has reached the injection assembly. At this time, check all connections for leaks. Tighten any loose compression nuts.
4. The pump speed and its output are adjustable from approximately 1/8 oz. (4.5 ml) to 3/4 oz. (24.5 ml) per minute. Adjust the rinse pump speed based on the length of the rinse cycle and how much rinse fluid is required. See the wiring/board layout page for control details.

STEP #7B. CONTROL SETUP - DETERGENT (Refer to circuit board diagram)

NOTE: Low Range = Approximately 4 – 25 drop titration (more range and more sensitive to adjustment)
High Range = Approximately 10 – 25 drop titration (less range and less sensitive to adjustment)

1. With the dish machine still turned "ON", fill the machine with water. Bring the water up to the proper operating temperature. See the board diagram on the wiring / controls page. Locate the concentration and time delay adjustment potentiometers. With the control board switch "OFF", start the machine operating manually. Add enough detergent to bring the solution up to the required minimum concentration. Allow enough time for the solution to mix thoroughly. Slide the control switch "ON".

Turn the concentration adjustment potentiometer clockwise until it calls for soap, then turn it back on division and wait until the feed function stops. Now, very slowly, turn the potentiometer clockwise until it begins to feed again. Allow the feed to stop automatically.

2. Setting the time delay function (the adjustment potentiometer is variable for 20 seconds to 6 minutes); set the potentiometer for about 30 seconds. Be sure that the installation recharges itself fast enough that the alarm does not activate. If the feed cannot satisfy the probe before the buzzer sounds, turn the potentiometer up to allow for more feed time. Adjust buzzer volume to desired level.

WARRANTY

Viking LLC, A DEMA Company products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to any products which have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, improper voltage supply, physical abuse or misapplication. Rubber and synthetic rubber parts such as "O" rings, diaphragms, squeeze tubing and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of Viking LLC products. If the products are altered or repaired without prior approval of Viking LLC, this warranty will be void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge, F.O.B. factory. Viking LLC assumes no liability for damages. Return Merchandise Authorization (RMA) number to return units for repair or replacement must be granted in advance of return.

PRO IV REPLACEMENT PARTS LIST

PART DESCRIPTION	PART NUMBER
THREE PUMP HOUSING	MOP PRV3PMP M23
THREE PUMP CASE	MOP PR3PCSE M36
THREE PUMP LID	MOP PR3PLID M38
THREE PUMP BOARD CARRIER	MOP P5BDC2P N38
PRO III-V BOARD	BOA PS3-5BD B01
DETERGENT MOTOR DRIVE BOARD	BOA PS4BABY B04
60 RPM DETERGENT MOTOR #2884	CMP 2884MOT 000
18 RPM RINSE MOTOR #2883	CMP 2883MOT 000
RINSE MOTOR HARNESS	VOP RINMOT V01
PRESSURE SWITCH HARNESS	VOP PSHK12 V02
PRESSURE SWITCH JUMPER HARNESS	VOP PSJMPR V04
2 INTERNAL TRANSFORMER ASSEMBLY (INCLUDES CAP, WIRING BLOCK, MOUNTING HARDWARE, AND CONNECTORS FOR CIRCUIT BOARD)	VOP 2INTAS V13
EXTERNAL TRANSFORMER HARNESS (III-V)	VOP P3-5EX V07
DETERGENT MOTOR DRIVE BOARD HARNESS	VOP DETBRD V03
PROBE HARNESS	VOP PRBWIR V11
1/4" PRO DETERGENT TUBE WITH ENDS	VOP 1/4SIEN V25
1/8" PRO RINSE TUBE WITH ENDS	VOP 1/8NEND V30
DETERGENT ROLLER ASSEMBLY (WHITE)	VOP ROLPRO V44
RINSE ROLLER ASSEMBLY (BLUE)	VOP PROROLB V07
PRO FACE PLATE WITH BEARING	VOP FCEBEAR V94
PRESSURE SWITCH COMPLETE	VOP PRES/SW V74
SNAP TOGETHER DIP TUBE	MOA 2PTDTUB M69
1/4" FITTING FOR SNAP TOGETHER DIP TUBE	MOA DTUB1/4 M68
1/8" FITTING FOR SNAP TOGETHER DIP TUBE	MOA DTUB1/8 M66
1/8" BALL CHECK VALVE **FOR RINSE ONLY**	VOA 1/8BCHV V69
1/8" NPT X COMPRESSION STRAIGHT FITTING (BRASS)	CHA 1/8STBR 000
1/8" FPT SADDLE BRACKET	CVA VRBRCKT 000
BRASS INJECTION ASSEMBLY COMPLETE	VOA 1/8INJB V54
1/4" HOLE PLUG INJECTION ASSEMBLY	VOA HP-INJ V40
SURFACE MOUNT LEG KIT	VOP SURFKIT 001

PRO III, IV, V WIRING GUIDE

PRO V WIRING NOTE: On PRO V units, the sanitizer drive board gets its power from one of the rinse power legs and a pressure switch leg or the pressure switch loop in the case of a dual internal transformer (no pressure switch). If you have the unit apart and aren't sure where to hook up for power again, do the following: With the lid up on the unit and beginning from the first wire at the board on the left, count over to the third wire (yellow), and the fifth wire (one of the secondary side legs of the rinse transformer). ONLY THESE TWO WIRES SHOULD SUPPLY POWER TO THE SANITIZER MOTOR DRIVE BOARD!!

EXTERNAL TRANSFORMER WIRING
sCONNECTIONS TO THE WIRING HARNESS -- EXTERNAL TRANSFORMER (S) HOOKUP ONLY

PRO III, PRO IV, and PRO V: These models have the same color-coded wiring setup as in the past. The wires at the end of the 7-conductor cable coming from the board correspond as follows: Red and White are the DETERGENT power leads (24 VAC ONLY). Blue and Brown are the RINSE (AND SANITIZER) power leads (24 VAC ONLY). Green is your ground. FROM THE FACTORY THE UNIT WILL BE READY FOR CONNECTION TO THE SECONDARY SIDE OF THE TRANSFORMER (S), WITH THE FOUR POWER WIRES HAVING BEEN TWISTED TOGETHER AS FOLLOWS --

RED AND BLUE = ONE LEAD TO SECONDARY SIDE OF TRANSFORMER (24 VAC)
WHITE AND BROWN = ONE LEAD TO SECONDARY SIDE OF TRANSFORMER (24 VAC)

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40 VA SDT-1 TRANSFORMER ONLY
RED AND WHITE = 24 VAC SECONDARY

	=BLACK FOR ONE LEG		=YELLOW FOR ONE LEG
220 / 240 VAC	=BLUE FOR ONE LEG	208 VAC	= BLACK FOR ONE LEG
	=JOIN BROWN AND ORANGE		=JOIN BROWN AND ORANGE

120 VAC =JOIN BLUE AND ORANGE - ONE LEG
=JOIN BLACK AND BROWN - ONE LEG

****INSULATE UNUSED WIRES - SDT-1 IS NOT RECOMMENDED FOR PRO V UNITS - USE SDT-5****

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150 VA SDT-5 TRANSFORMER ONLY
RED AND RED = 24 VAC SECONDARY

	=BLACK FOR ONE LEG		=BLACK FOR ONE LEG
220-240 VAC	=BLUE FOR ONE LEG	208 VAC	=YELLOW FOR ONE LEG
	=JOIN WHITE AND BROWN		=JOIN WHITE AND BROWN

120 VAC =JOIN BLACK AND BROWN - ONE LEG
=JOIN BLUE AND WHITE - ONE LEG

INSULATE UNUSED WIRES SDT-5 WILL RUN UP TO 3 MOTORS SIMULTANEOUSLY

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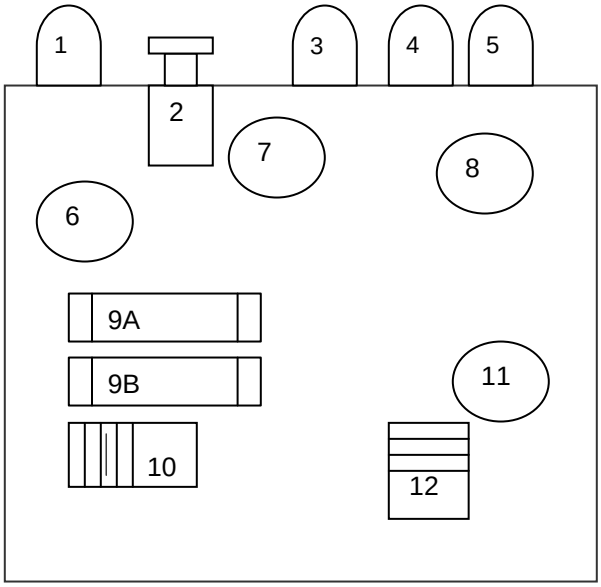
440 VAC SDT-4 TRANSFORMERS - 440 - 480 VOLTS PRIMARY - 24 VAC SECONDARY
BLACK AND WHITE - CONNECT TO PRIMARY VOLTAGE RED AND RED - 24VAC OUTPUT TO DISPENSER

WARNING: Incorrect wiring to the dish machine, such as connecting the probe to a power source, will result in a failure of the control board and will void the factory warranty!! Any other wiring combinations other than those described here may result in damage to the control board as well as damage to the installer!! Exercise extreme caution when working with high voltages and always make sure that breakers are thrown off before attempting to do any wiring.

MASTER BOARD FOR ALL PRO III. IV. AND V UNITS



1. Rinse Feed Indicator Light
2. Rinse Prime Button
3. Power Indicator Light – Power is present from the dish machine when light is lit.
4. Detergent Feed Indicator Light
5. Low Supply Light – indicates the probe is not being satisfied – out of product.
6. Rinse Speed Pot
7. Buzzer Volume Potentiometer – 0 = Quiet 100 = Loud
8. Low Product Alarm Delay Po
   0 = minimum time to alarm (approx. 20 seconds)
   100 = maximum time to alarm (approx. 6 minutes)

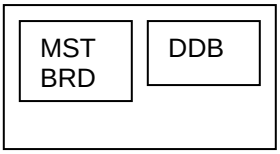
9A. Rinse Fuse (5 Amp)
9B. Detergent Fuse (5 Amp)

10. Power Switch Left = Off Right = On
11. Detergent Concentration Potentiometer – allows adjustment of concentration 0=Minimum 100=Maximum
12. Range Selection Switch Low = 4-25 Drops High = 10-25 Drops

BOARD LAYOUTS

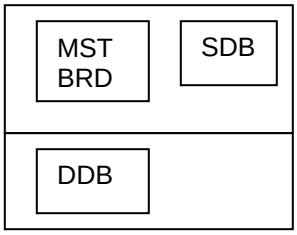
PRO III - LID

PRO IV - LID



PRO V DP - LID

PRO V DL - LID



NEW WIRING COMPONENT COLOR CODE

RINSE SIDE OF BOARD
RED=RINSE MOTOR WIRES
YELLOW=PRESSURE SWITCH CIRCUIT
BLACK=RINSE POWER IN

DETERGENT SIDE OF BOARD
BLUE=DETERGENT POWER IN
WHITE=DETERGENT SOL POWER **OR**
DETERGENT MOTOR BOARD
GREEN = PROBE WIRE

DDB = Detergent motor drive board (Pro IV & Pro V DL) - THERE ARE NO ADJUSTMENTS ON THIS BOARD
SDB = Sanitizer motor drive board (Pro V DP & DL) THE POTENTIOMETER ON THIS BOARD CONTROLS THE SANITIZER MOTOR SPEED

INTERNAL TRANSFORMER UNIT WIRING INFORMATION

When hooking up the **high** voltage coming into the wiring block, first check the voltage with a voltmeter and use the label on the transformer cap to hook up to the correct leads. **REMEMBER: YOU WILL ALWAYS USE THE COMMON POSITION FOR ANY VOLTAGE - 240 WOULD MEAN CONNECTING ONE LEG TO THE COMMON POSITION AND ONE TO THE ONE MARKED FOR 240 VOLTS**. If you need to share a single source of voltage from the dish machine in a unit with two internal transformers and a pressure switch, use small (18 AWG minimum) jumper wires. Use the correct positions, i.e. match up the voltage positions for the second transformer with those on the first. Remember that if you purchased a unit with dual internal transformers and a pressure switch and did not use the pressure switch, these wires must be disconnected from the pressure switch and tied together to complete the circuit or the rinse pump **WILL NOT RUN**. If you do not want to cut the leads, the black switch allows for a normally closed setup. Remove the Pressure switch from its housing. Remove the red connector from the middle terminal on the micro switch and place it on the outside terminal, the one closest to the front of the unit. This will complete the circuit without having to cut the wires.