

Installation Instructions

Undercounter Dishmachines

If you have questions, call 800-922-2178 or visit our website at: www.AmericanDish.com

BEFORE YOU BEGIN:

American Dish Service provides this information as a service to our customers. Keep all instructions for future reference. ADS reserves the right to alter or update this information at any time. Should you desire to make sure that you have the most up-to-date information, we would direct you to the appropriate document on our web site: www.americandish.com.

Set out below are the specifications and requirements that you must use and follow to properly install the type or types of equipment listed above. **It is your obligation as the customer to ensure that the machine is installed safely and properly, and when completed, the machine is left in proper and safe working order.** Electrical, Plumbing, and Chemical hookup must be performed by qualified personnel who will ensure that the equipment is installed in accordance with all applicable Codes, Ordinances, and Safety requirements. **Failure to follow these requirements will void the warranty. ADS assumes no liability or control over the installation of the equipment. Product failure due to improper installation is not covered under the ADS Warranty.**

WARNING:

Always disconnect power to dishmachine and tag out before servicing. Caution: Refer to chemical suppliers MSDS sheets for proper handling and chemical issues. Turn off machine at master switch before opening for inspection.

IMPORTANT:

Dishmachines are 120 volt and require a 20 amp clean circuit and suitable ground. It is recommended that new equipment be installed with new circuit breakers.

NOTE TO INSTALLER:

DO NOT OPERATE MACHINE WITH SPRAY ARM INSTALLED UNTIL MACHINE IS FLUSHED WITH WATER.

Fill machine with water and run through one cycle without spray arm in place. This will flush installation debris from tank and pump and prevent damage to spray arm bearing.

Water Heaters or boilers must provide the minimum temperature required by the type of machine and a minimum recovery rate of 68 gallons per hour. The recommended temperature range for optimal performance is 130-140 degrees F. **Caution: Do not exceed water temperatures above 150 degrees F.**

FOR YOUR SAFETY

Read and observe all **CAUTIONS** and **WARNINGS** shown throughout these instructions. While performing installations described in this booklet **APPROVED** Personal Protective Equipment, including **SAFETY EYE-WEAR** must be worn.

IMPORTANT- Dishwasher **MUST** be installed to allow for service of motor and rear plumbing. For the pumped drain model, the water inlet line must be flexible and long enough to remove the machine, as well as the power line and drain hose. This is a code requirement for cleaning and servicing undercounter dishwashers.

Optional Accessories -

2 1/2 minute 8-cam timer for regular ET Series (pre-wash, wash, rinse cycle)

2 minute timer

Sink drain adapter w/barb for pumped drain Dishracks

Table Package: 48" table w/sink, pre-rinse, wall shelf, scrap basket

Plumbing

Connect to Water Supply

Important: Always check for local plumbing codes before installing. Flush water lines before connecting dishmachine.

Prior to plumbing the dishmachine, level machine by adjusting feet, at the bottom of each leg, up or down. Water heaters or boilers must provide the minimum temperature required by the type of machine and a minimum recovery rate of 68 gallons per hour. The recommended temperature range for optimal performance is 130-140 degrees F.

Caution: Do not exceed water temperatures above 150 degrees F. Residential hot water heaters are not sufficient for commercial application. Typical On-Demand or "Flash Heaters" do not have flow rates capable of supplying commercial dishwashers.

Connect 1/2" FPT water supply line to 1/2" FPT on the fresh water inlet manifold. Fresh water inlet manifold is on the lower frame. Supply water must be 120 degrees F. minimum (130-140 degrees F. recommended) from primary heat source. Building source water supply must be a minimum of 15 PSI flow during fill (water solenoid open).

Water Pressure Problems: Water pressure below 15 PSI flow will require additional measures to resolve low pressure issues. To resolve water pressure problem, increase pipe diameter to 3/4" coming directly from the hot water heater. If problem persists, suggest installing pressure bladder tank at 5 gallon minimum capacity. Another option, would be to order the undercounter machine with a longer time cycle, allowing longer fill time.

Drain Requirements for Undercounter Dishmachines "ET Series"

Follow local codes

Gravity drain line is 1 1/2" pipe **-WARNING: Never use anything smaller on a Gravity Drain.**

Pumped drain is 3/4" hose, 6-feet long

Close petcock on wash pump before operating machine

Gravity Drain

Plumb undercounter dishmachine drain outlet (1 1/2" FPT) to waste drain pipe access. Dishmachine gravity drain is 8" (on center) from the floor. If drain line has a long run increase pipe size to 2".

Important: Drain access, including the trap, must be no higher than 7" from the floor.

Plumb drain line as straight as possible and verify that drains are free-running. Once plumbed run machine through a complete cycle and check for leaks under the sump area. Inspect drain push rod for alignment and smooth up and down movement.

To test for slow-running drains: Run machine through normal cycle, open door, and use manual drain switch to remove water. Time the length it takes to completely empty the machine. If length of time is greater than ten (10) seconds, sewer drain is clogged or restricted. Consult a plumber.

Pumped Drain

The 3/4" drain hose provided with the machine is 6-feet long and will transfer drain water from the machine to a wall drain. Connect the hose to a 3/4" barb fitting and clamp the hose on the barb. The barb fitting is first screwed into a bushing adapter that in turn screws into or onto the building's drain pipe. This prevents the drain hose from coming out of the drain and flooding the floor. The wall drain must have a trap prior to connection to the barb fitting. Do not install the hose barb higher than 20" off the floor or the machine's safety overflow protection will be defeated.

IMPORTANT: The pumped drain undercounter option is designed with a built-in overflow protection in the event the water valve experiences a slow running leak. This overflow protection does not work if the drain hose is run higher than 20" off the floor. Leaking that results from the tank overflow will be the responsibility of the installer if the drain height exceeds 20" from the floor.

If the installer decides to run the drain line to an existing sink drain above the trap, ADS offers a barbed connection adapter that will attach to a 1 1/2" tail piece and then connect to a 1 1/2" slip nut connection of the gas trap. The PVC part must be cut to fit. The part number is #92-1088. Do not install on wall connections higher than 14".

IMPORTANT FOR PUMP DRAIN MODELS: DO NOT PULL THE PUMP FILTER OUT FIRST.

First drain the machine with the drain switch, then remove the pump filter and empty the contents.

(Note: pulling the filter out first will cause drain pump clogging and service calls.)

Electrical

Electrical Low-Energy Dishmachines - "ET Series"

Important: The dishmachine master switch must be in the OFF position before connecting power. This switch is located on the right side of the control box.

The power supply (120 volt - 20 amps) must consist of two (2) **10-12 AWG copper wires** and a suitable ground wire. The 20-amp breaker or fuse must be on a clean circuit to the machine. ADS has provided a junction box (for electrical hook-up) with a conduit hole for 1/2" conduit. This junction box is located on the left front side of the frame, behind the front panel or skirt.

Remove the junction box cover and attach 120 volt supply wire (usually black) to black wire in the junction box. Attach the neutral wire (white) to the white wire in the junction box. Attach the ground wire to the green ground screw located in the junction box and tighten all wires firmly. Replace junction box cover.

Warning: You must wear approved Personal Protective Equipment, including SAFETY EYE-WEAR before connecting chemicals. Chemicals can destroy the plumbing and stainless of the dishmachine. Do not run chemical lines over controls or plumbing. Always secure chemical lines and check regularly for leaks.

Chemical Dispensers

ADS provides three (3) peristaltic pumps to dispense liquid chemicals
Chemical feed lines are color coded "Red" Detergent, "Green" Sanitizer, "Blue" Rinse-aid
Pick-up tubes are provided for chemical product containers
Sanitizer (chlorine) settings at 50 parts per million

Caution: Use only commercial grade low-energy chemicals. For proper operation, use non-foaming detergents and buffered sanitizers. Do not wash gold, pewter, silver, or silverplate with chlorine based sanitizers. High concentrations of chlorine sanitizers and caustic detergents will cause damage to metals and welds. Do not exceed 100 parts per million (PPM) free chlorine. USE ABOVE THIS LEVEL WILL VOID THE WARRANTY.

Place color coded tubes into proper chemical containers. The containers need to be as close to the machine as possible. This may require shortening of the flexible chemical transfer tube. On the side of the control skirt, there are chemical prime switches. There is a decal identifying each switch. To prime chemicals use these momentary prime switches, verifying that all three pumps rotate. If a chemical pump squeeze tube has taken a set (not allowing the pump to turn), manually free the pump by pulling on the discharge side (right-hand) of the squeeze tube while pushing the prime switch.

Chemical dispensing is controlled by a mechanical cam timer. All chemical products must be adjusted for product's concentration and local water conditions. It will be necessary to adjust initial factory setting (See Cam Timer Adjustment Section). Water softeners should be added to correct hard water conditions. Hard water can be treated with expensive chemicals, but it is more effective and less expensive to soften the water before it comes to the dishmachine.

Control System Set-Up

Cam Timer Adjustment

Timers are available with 6,7, or 8 cams .
Cycle time is not adjustable

Timer cams (wheels) are fixed or adjustable. Each cam controls a specific function, as noted on the timer decal. Adjustable cams are comprised of two (2) wheels. The outer edge of each wheel (half) has a high and low segment. When the wheels are rotated, the two low segments can form a notch. Above each cam is a timer switch with a metal finger that rides on the cam. When the finger drops into the cam notch, the function of that cam begins. To widen (length = time) or close the notch, use timer adjustment tool (provided). This tool has two (2) raised buttons that fit into the holes on each wheel. The factory sets the start of each function using the right-side of the cam. **TO ADJUST rotate only the left-side cam wheel. The left-side of the wheel controls when that specific functions stops.**

#1 Cam: The white cam on your left is the master cam. It controls the total time of the cycle and is not adjustable.

#2 Cam: Continuing left to right, this black cam controls detergent. The detergent cam is adjustable.

#3 Cam: This white cam controls the drain. No adjustment is available.

#4 Cam: The H2O or fill cam opens the water solenoid. Too little water causes the pump to cavitate. Overfilling does not allow all the water to drain between cycles, causing carry-over. Do not move the right side of the cam wheel. Adjust left-side of cam wheel to close water solenoid when the dishmachine reaches full sprayarm pressure.

#5 Cam: This black cam controls sanitizer. The sanitizer cam is adjustable. Set sanitizer concentrations at 50 parts per million (Warning: Do not exceed 100 PPM's). Monitor chlorine levels by using chlorine test strips. To Test: Run rack of dishes through a complete cycle, use test strip to test water sample from the top of any glass.

#6 Cam: This black cam controls rinse additive. The rinse-aid cam is adjustable.

#7 Cam: This cam is used to pause or "burp" the pump. It is set at the factory, but can be adjusted.

#8 Cam: Available on 2 1/2 minute timers only. Provides prewash/wash/rinse. Do not adjust.

Machine Tuning

Tuning is essential for proper cleaning
Do not skip this IMPORTANT PROCEDURE

The key to understanding proper tuning, is to realize that you cannot control or change the drain. It is a fixed function. Therefore, all tuning is accomplished by setting or adjusting the fill cam in relationship to the fixed drain cam. The goal of tuning is to eliminate all soiled water through the drain before the fixed drain closes.

A sign that soiled water has exited the tank will be the typical hollow sound of a pump running without water. It is at this point that you want the water solenoid to come on. That function is controlled by the adjustment of the fill cam. For optimum results, allow the fill water to flush the interior of the machine for a few seconds before the drain closes.

Once the drain is closed the fill cycle begins. Fill must continue until full spray arm pressure is reached. This can be verified with the use of a spray arm pressure gauge attached to the lower wash arm end plug. This gauge will indicate full spray arm pressure when the needle stops fluctuating and remains steady. Adjust your fill cam to turn the water **OFF** when you reach this point of steady pressure. To satisfy code, a minimum of seven (7) seconds of full rinse pressure (with chlorinated water) is required. Sanitizers should be injected during the second half of the fill cycle.

If a pressure gauge is not available, an approximation of full spray arm pressure could be determined by the sound of the spray arms. There would be a typical continuous swishing sound of the water spraying. Again, this would be the point to turn the water **OFF**.

Important Note: Seven seconds of full spray arm rinse pressure is required by code. In the event that air is trapped in the pump during fill, a vapor lock can occur. If vapor locked, check incoming water temperature and reduce to 120 degrees F. minimum (130-140 degrees F. recommended). If the problem is caused by low water pressure to the machine, see plumbing instructions to correct condition. If vapor lock is still present, electrically stop or pause the pump to release air. This is done by moving the brown wire on the back of the switch behind sanitizer cam. Move this brown wire, which is currently on the top position of the switch, to the center position **taking care that wires do not touch**.

Final Installation Check List

Check to be sure power is **OFF**. The master switch is located on the right side of the control box.

Open door and remove all packaging, save all instructions for future reference.

Remove protective film if present from door, hood, front panel, and control box cover.

Turn on water supply. Check for leaks. Tighten connections if needed.

To operate, turn on main power circuit breaker and switch dishmachine master switch to **ON** position. This switch is the bottom toggle switch on the right side of your control panel or skirt.

Remove spray arm and manually fill the machine with water using the fill switch (labeled **FILL**). This switch is located on the front of the control skirt, under the door. Run one complete cycle pushing the black start switch (labeled **START**) located on the front control panel or skirt. This is your **flush cycle**, which removes installation debris from wash tank and pump. After flushing, re-install the spray arm.

Failure to follow this procedure can damage spray arm bearing.

Observe the water level decal. This decal is located behind the front control skirt, on the outside of the pan, near the drain of the machine. This mark is the approximate level for initial fill.

Verify incoming water temperatures 120 degrees F. minimum (130-140 degrees F. recommended).

Caution: Do not open door while machine is in cycle. Doing so may result in personal injury.