American Dish Service™
Manufacturers of Ware Washing Equipment

INSTALLATION INSTRUCTIONS

Model AF-3D-S/AFC-3D-S IRMA/AFB-C IRMA

Available in 90, 120, 150-second Time Cycles

Door-Type, Single-Rack, Chemical Sanitizer, Dump & Fill Dishmachine

Listed by UL #E68594, NSF/ANSI 3, ASSE 1004 #933, LA Test Labs File M-780089, Mass. License P3-0111-306

DANGER

The electrical power supplied to this machine is an imminent hazard that could result in severe bodily injury or death if not properly installed or hooked up correctly. When working in the control box or on electrical parts, always disconnect power and tag-out before servicing. Replace cover to control box and other protective covers when finished servicing this equipment.

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

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CAUTION

Read manufacturer's manual before using this product. For your safety read and observe all cautions shown throughout these instructions. While performing installations described in this booklet, wear approved personal protective equipment, including safety eye-wear.

CHEMICALS—There are potentially hazardous situations when working with industrial cleaning chemicals for dishmachines. See chemical manufacturer's SDS sheets and safe practices for handling and installing chemical feeders and supply containers.

NOTICE

#1 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 should be performed by a qualified professional who will ensure that the equipment is installed in accordance with all applicable Codes, Ordinances, and Safety requirements. Failure to follow the installation instructions could 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.

#2 FLUSH OUT—Do not install spray arms until machine is flushed with water. When this machine is turned on, it is normal for it to start and complete one cycle. First, fill and run a cycle. Do this before installing the spray arms. Draining the water will flush installation debris from the tank and pump; this prevents damage to spray arm bearings. To drain, pull the drain ball out of the sump.

#3 WATER HEATERS OR BOILERS—must provide the minimum temperature of 120F degrees required by the machine listed above (130F for AFB), the minimum demand for these are 82 gallons per hour (92.5 AFB). The recommended temperature range for optimal performance is 130-140F-degrees. These specifications are for the dishmachine only, which typically accounts for 70% of a restaurant's hot water demand.

#4 IMPORTANT—The models of dishmachine listed in this document must be installed with space around the outside to allow for servicing of motor and scrap accumulator as well as a 4" space behind the machine from the wall.

#5 INSPECT FOR DAMAGE—If you receive a damaged dishmachine, do not sign "Clear" but write "Damaged" on the documents.

#6 LOOSE ELECTRICAL CONNECTIONS—Damage to equipment can occur if the following precautions are not observed. Before connecting power to the machine, check all electrical terminals in the control box. Screws can loosen in transit. Loose connections on high amp load terminals such as the pump motor will cause wire burning and component damage during operation and will not be covered under ADS warranty.

#7 "CLEAN CIRCUIT"—means the electrical circuit breaker for the dishmachine supplies no other outlets, machines, or lights. GFCI outlets are not recommended for commercial dishmachines; ADS recommends that a single-rack machine be installed with the wire connection (hard-wired) directly from the circuit breaker. If a plug and socket are used to provide electrical power to a dishmachine in a commercial kitchen, then according to electrical code it must be a GFCI, but not all GFCIs are the same. They must be rated for the draw of the circuit.

#8 This equipment is considered an item of heavy use. It is not rated for outdoor use.

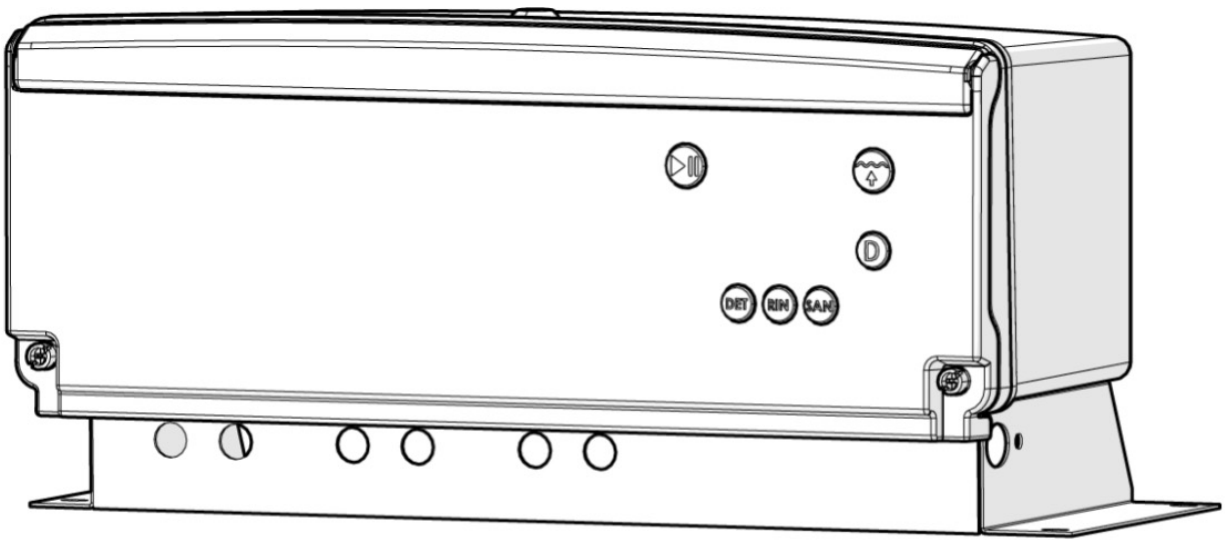
ELECTRICAL SECTION

The electrical power supplied to this machine is an imminent hazard that could result in severe bodily injury or death if not properly installed or hooked up correctly

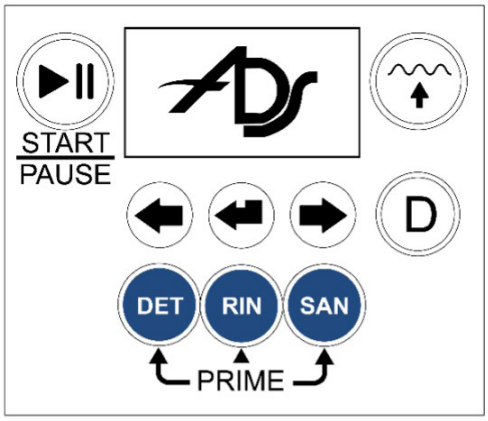
Electrical—AFB IRMA or AF-3DS IRMA (120 volt, 20 amp)

A time cycle of 90-seconds is the shortest time available for this model and is compliant with NSF listing. To change to a longer time cycle, Instructions are given in page 6 under step 1.

The following instructions cover the IRMA controls and operations

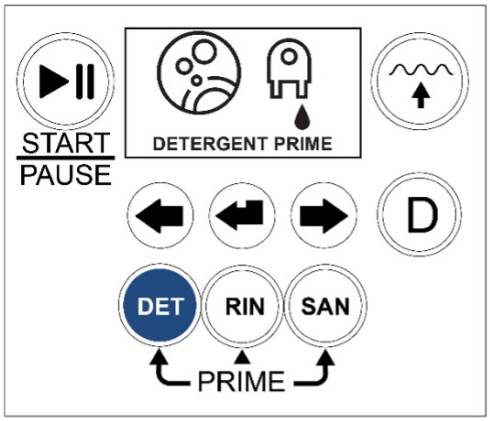


OPERATING INSTRUCTIONS – PRIMING CHEMICAL



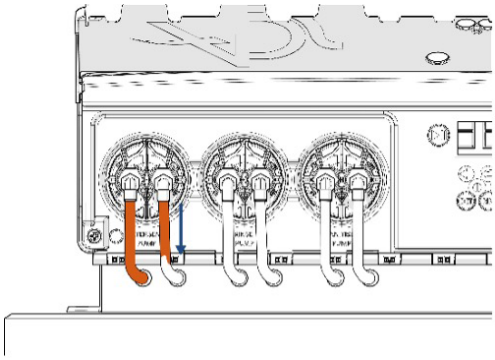
STEP 1

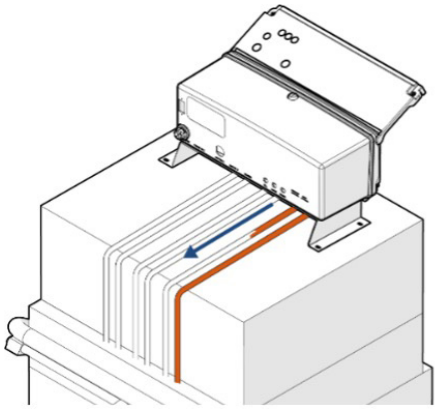
To prime the desired pump, press and hold the button for that pump.



STEP 2

A short animation will play on the screen while you are priming the pump.

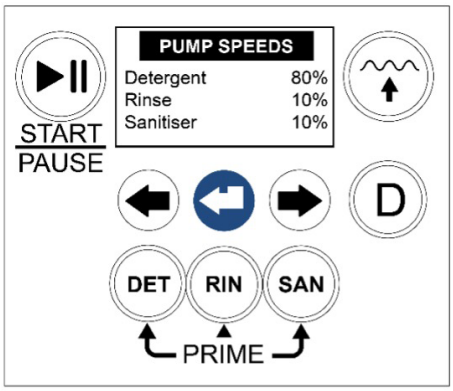




STEP 3

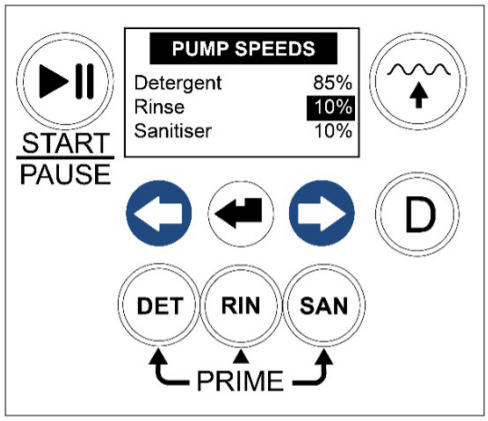
Continue to prime the pumps until the chemical flows into the chemical inlet.

OPERATING INSTRUCTIONS – CHANGING PUMP SPEEDS



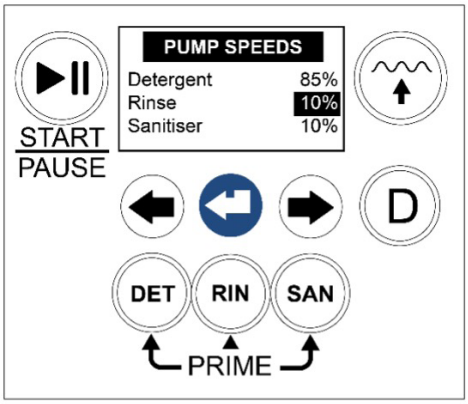
STEP 1

Continue to press the **ENTER** button on the unit until you reach the Pump Speeds screen.



STEP 2

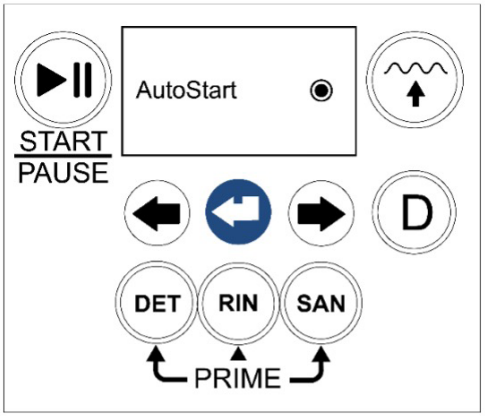
Press the **RIGHT** button to change the pump speed. Use the **RIGHT** and **LEFT** arrows to adjust the pump speed.



STEP 3

Press the **ENTER** button to navigate between the different pumps.

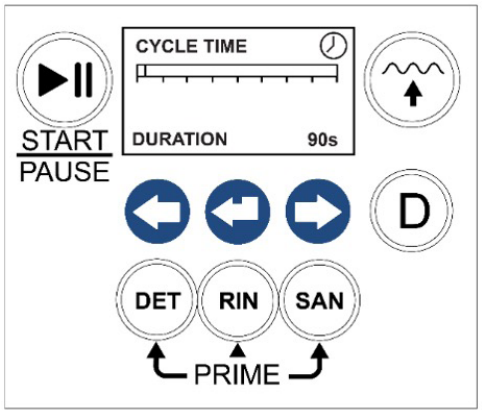
OPERATING INSTRUCTIONS – AUTOSTART



STEP 1

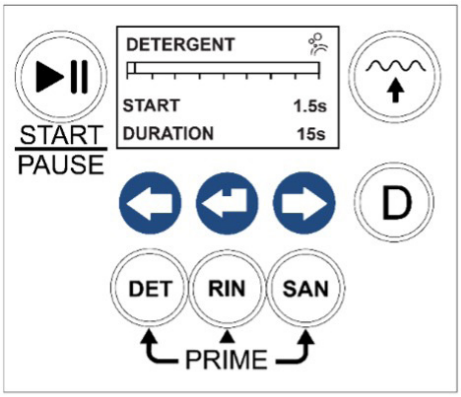
Once you have set the pump speeds, press the **ENTER** button again to activate the Auto Start function. This allows the machine to automatically start when the lid is opened and closed after completing a cycle.

OPERATING INSTRUCTIONS – ADJUSTING THE CYCLE TIMES



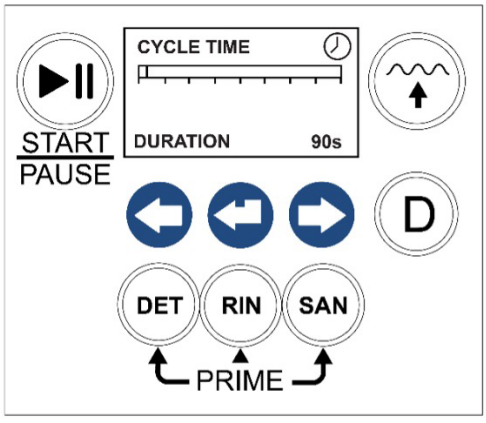
STEP 1

Cycle times can be configured to 90, 120, or 150 seconds. Use the **LEFT** and **RIGHT** arrows to change the value. Press the OK button to proceed to the next menu. The default wash cycle is 90 seconds.



STEP 2

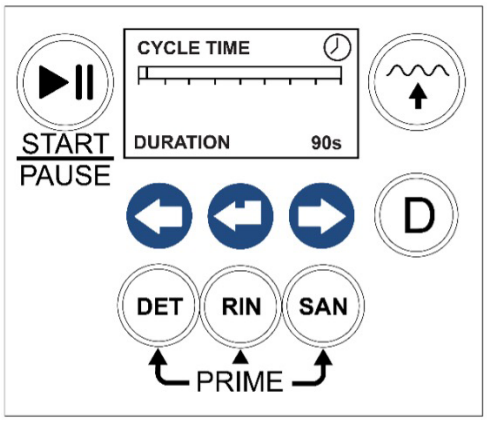
The Detergent Pump automatically activates 1 second after the cycle begins. The duration for which the pump runs can be increased or decreased using the **LEFT** and **RIGHT** keys. It can be set to run for up to 25% of the total cycle time. Press the OK button to proceed to the next menu. Default setting: **1.5** seconds for the detergent.



STEP 3

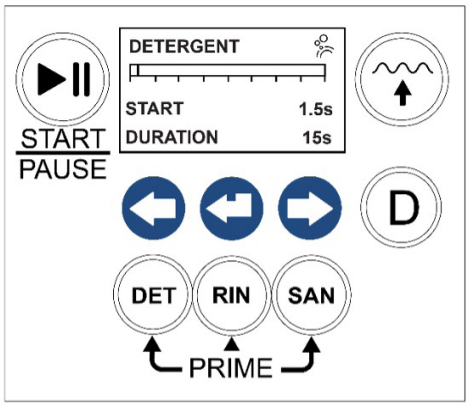
The Drain Open time is set to start halfway through the cycle. The duration for which it remains open can be increased or decreased using the **LEFT** and **RIGHT** keys. Press the **OK** button to proceed to the next menu. Default setting: **50 seconds.**

OPERATING INSTRUCTIONS – ADJUSTING THE CYCLE TIMES CONT.



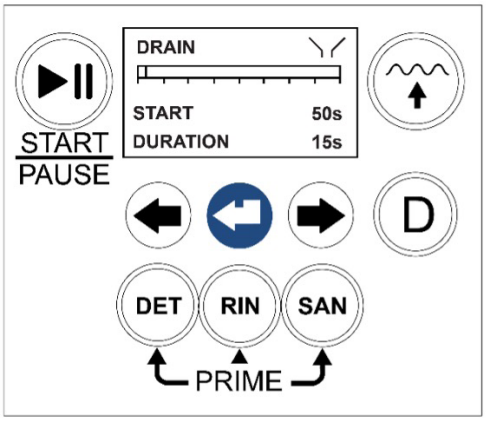
STEP 4

The water valve refills the machine at the designated time. The duration for which the water valve remains open can be increased or decreased using the **LEFT** and **RIGHT** keys. Press the **OK** button to proceed to the next menu. **Default settings: 48 seconds for the start water fill and 14 seconds for the water fill duration.**



STEP 5

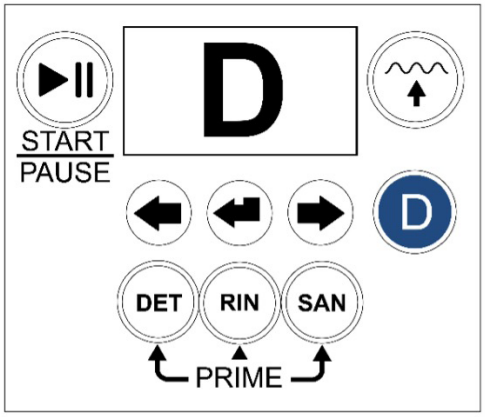
The Rinse and Sanitizer cycle automatically activates after the fill valve has closed. Chemical pumps run can be increased or decreased using the **LEFT** and **RIGHT** keys. Press the **OK** button to proceed to the next menu. Default setting: **0.5 seconds.**



STEP 6

The main water pump operates when the drain valve is open, and the machine is full. This screen is for informational purposes only. Default setting: **5%**.

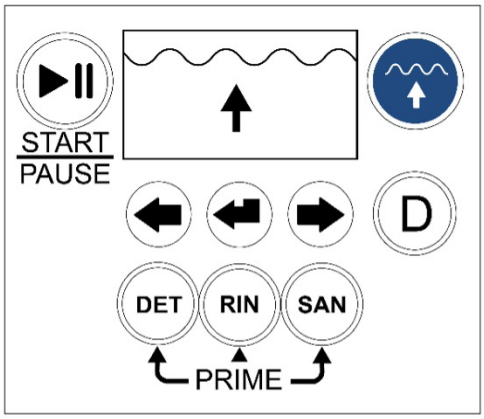
USER OPERATION – DELIME



STEP 1

Open the drain at 1 second and close it at 15 seconds (add acid now). Enable the water flow at 15 seconds and turn it off at 30 seconds. Activate the pump at 30 seconds and turn it off at 210 seconds. Open the drain at 210 seconds and close it at 225 seconds.

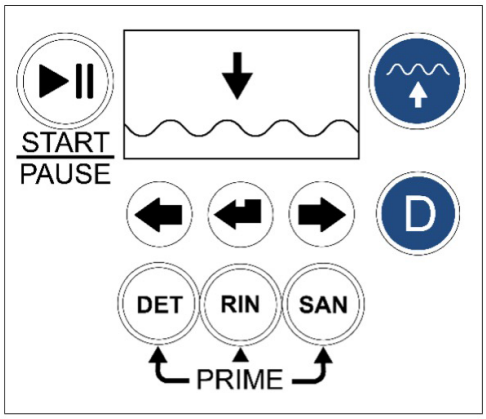
USER OPERATION – INITIAL FILL



STEP 1

Press and hold the **FILL** button to do the initial fill.

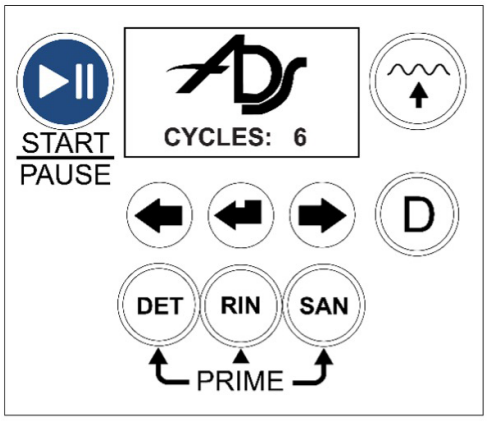
USER OPERATION – OPEN THE DRAIN



STEP 1

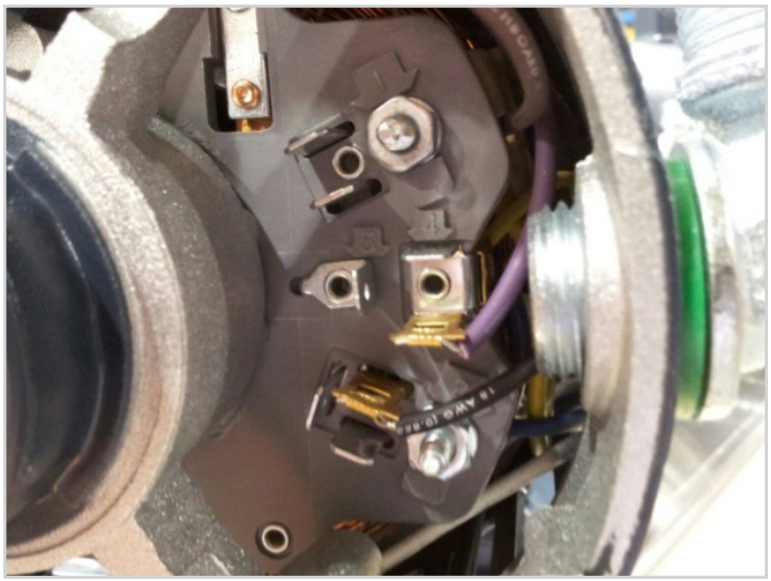
Press and hold the **FILL** and **DE-LIME** buttons to drain the water.

USER OPERATION – START THE MACHINE



STEP 1

Drain opens at 1 second and closed at 15 seconds (add acid now).
Enable Water at 15 seconds and turn off at 30 seconds.
Enable Pump at 30 seconds and turn it off at 210 seconds.
Open Drain at 210 seconds and close at 225.



Line connection spades for L1, Neu (arrow 1 & 2)

IT IS RECOMMENDED THAT THIS EQUIPMENT BE INSTALLED USING A NEW CIRCUIT BREAKER.
THIS MACHINE DOES NOT HAVE A BOOSTER OR TANK SUSTAINER HEATER.

PLUMBING SECTION

NOTICE

#1 TANKLESS—Water heaters can be problematic for commercial dishmachines. The ADS model AF-3D-S dishmachine requires the full cycle amount of water (2.2 gallons) supplied within 15 seconds. It has been the experience of ADS that tankless supply systems require multiple units plumbed in sequence with a recirculation loop to achieve proper pressure and temperature.

Check with the tankless water heater manufacturer, they may recommend a storage tank to guarantee proper flow and line pressure to the machine. **Failure to provide adequate water quantity, pressure and temperature to the machine will cause the machine to function improperly and is not the responsibility of ADS. Improperly installing ADS equipment in this manner could void the warranty.** All costs associated with providing an adequate water supply to the machine is the sole responsibility of the user.

#2 HOODS—Follow all local plumbing and mechanical codes. IMC 2012, section 507.2.2 requires Type II hoods for all commercial dishwashers except where the heat and moisture loads are incorporated into the building's HVAC systems or dishwashing equipment designed with separate heat and moisture removal systems. A door-type, chemical sanitizing dishwasher is rated at 4770 Btu/h by table 5E, ASHRAE Research Project #1362, 8/5/2008. ADS DOES NOT SPECIFY BUILDING HVAC VALUES

#3 DRAIN SIZE—Gravity drain lines are 2" pipe size. Do not use reducing adapters for drain lines, always use same diameter pipe or larger. Close pump petcocks if equipped.

Showing ½" female pipe inlet, ball valve, y-line filter, water solenoid, ASSE approved air gap (backflow preventer)

Typical name plate information

Hot Water Connection

WATER HEATER—Flush the building's water lines before connecting to the dishmachine. Prior to connecting plumbing, level the machine by adjusting the feet at the bottom of each leg up or down. Water heaters or boilers must provide the minimum temperature of 120F for these models which demands a minimum of **82 GPH for AF-3D-S series, 92.5 GPH for AFB**. Temperatures above 150F degrees exceed the operational design limits for these models. These models cannot be converted to high temp sanitizing by adding a booster.

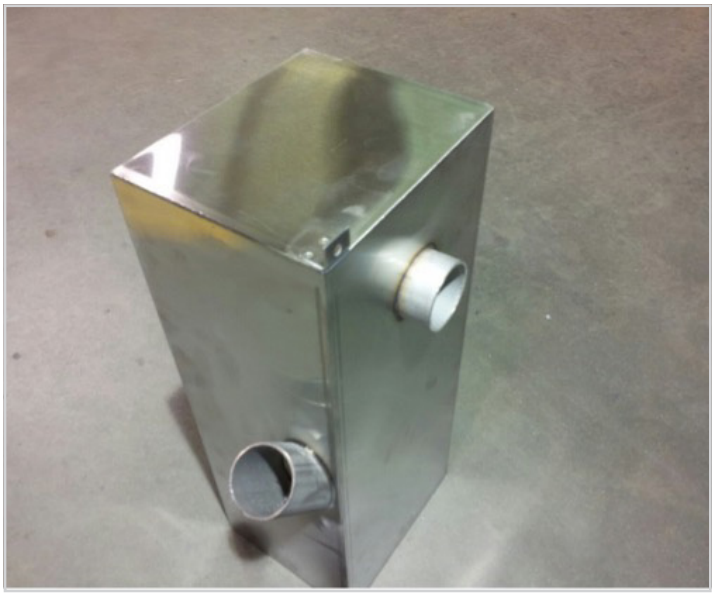
INLET FLEX HOSE—Domestic style 1/2" flexible braded hose should not be used to connect the dishmachine to plumbing. The ID of the plastic liner for this type hose restricts flow.
HARD COPPER PIPE—For copper pipe, connect 1/2" male pipe thread (1/2" is the minimum allowable pipe size) of the hot water supply line to the 1/2" female pipe thread on the dishmachine's water inlet manifold.

SINK FAUCET—If the hot water line is also supplying the faucet of a pre-rinse sink, install check valves on both cold and hot water inlets to the faucet— to avoid cooling the water by cross-connection in the mixing head of the faucet. The hot water inlet manifold is located behind the 3DS control box. The supply water must have a minimum of 120F degrees, but 130-140F degrees is recommended for best results. The AFB minimum is 130F degrees.

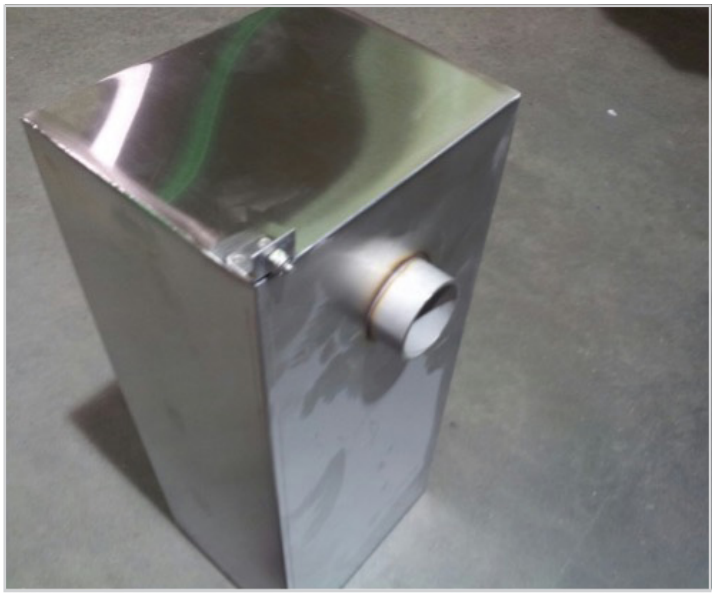
Water Pressure for Filling—Minimum pressure needed at the machine is 15 psi DURING the fill. This is called FLOW pressure. STATIC pressure readings can be misleading and can drop to "0" during fill. With flow pressures below 15 psi, additional measures will be needed to resolve the problem. The first suggestion is to run 3/4" pipe directly from the water heater to the dishmachine. If the problem persists, install a pressure bladder tank used for domestic well water; a 5 gallon size would be a minimum, 10 gallon as a maximum. Another option is to order a cam timer with longer cycle times but this will reduce hourly production rates.

Simple Test For Water Pressure—Empty the water out of the machine by lifting the drain ball, push the manual FILL button while counting the seconds to fill back up to the water level decal. If it takes more than 20 seconds to fill, there is not enough building pressure to operate the machine properly.

Drain Requirements

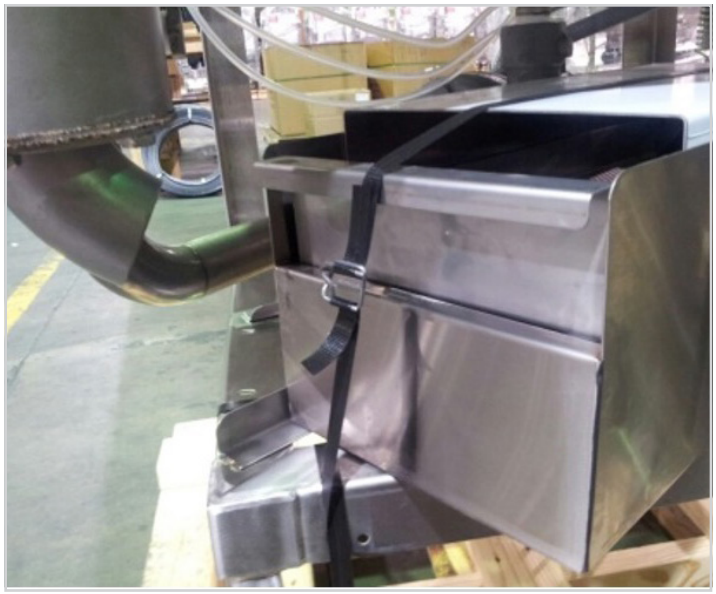


Showing 3DS bottom & side exit scrap box

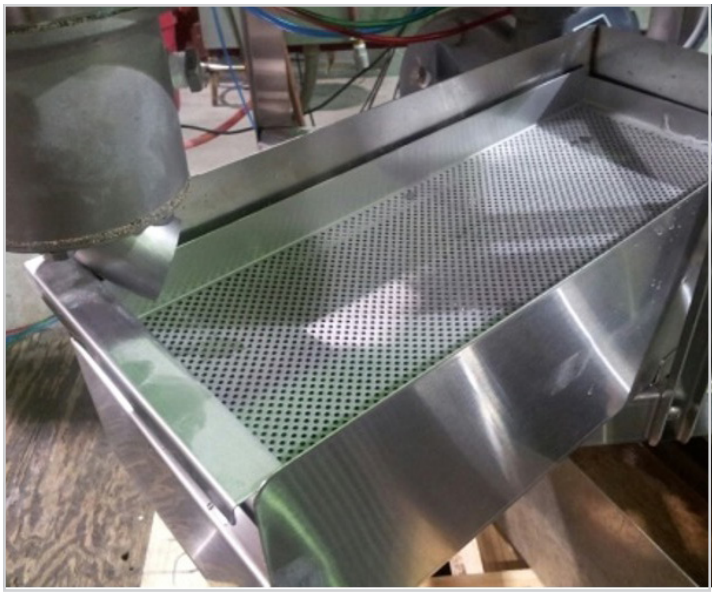


3DS bottom exit scrap box

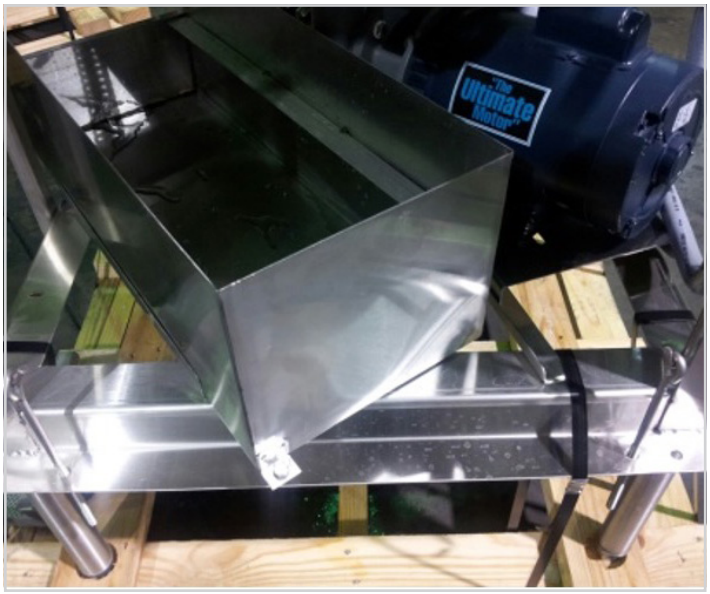
To place the AF-3DS or AFB scrap box correctly, move from the transport position on the rails and slide forward until it is under the sump. There is a hole in the rail to bolt the box into the operating position. To the rear of the box there will be either a side exit or bottom exit fitting that fits a rubber "no-hub" connector shipped inside the machine. This connector will fit 2" copper pipe or PVC tube. To prevent clogging, run drain lines as straight as possible. Do not run drain plumbing with tight radius elbows or 180-degree bends. The use of floor sinks for drains can cause flooding. Always run gravity drain lines downhill. Do not reduce the diameter of the pipe, always 2" or larger for drains.



Front view of Scrap Box in transport position



Front view of Scrap Box in operational position



Rear view of Scrap Box in transport position

Rear view of Scrap Box in operational position

CHEMICAL FEEDERS SECTION

WARNING

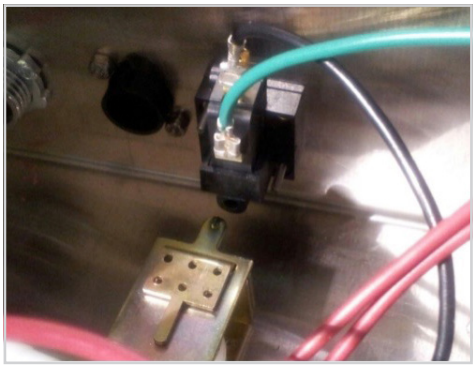
You must wear approved safety eye-wear before connecting chemicals. Read the chemical manufacturer's MSDS sheets. Chemicals can damage or corrode plumbing and stainless parts of the dishmachine. Do not run chemical lines over controls or plumbing. Always secure chemical lines and check regularly for leaks. If not properly handled, chemicals can cause serious bodily injury. In the event of chemical contact to skin or eyes; wash immediately with fresh water and seek medical attention.

For chemical adjustments see electrical section page 3. IRMA controls

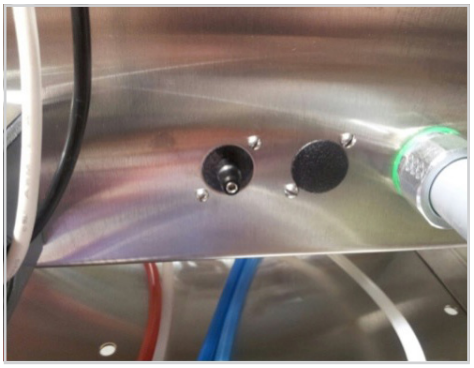
Warning decal about mixing chemicals

Impeller damaged from high acid solution

Showing sump, drain ball, water-level decal, chemical tubes



Optional Chemical Alarm switch, buzzer



Chemical alarm barb adjusting screw *

TYPE OF CHEMICALS—Use only commercial grade low-energy chemicals. For proper operation, use nonfoaming detergents and buffered sanitizer. Do not wash gold, pewter, silver, or silver-plate with chlorine based sanitizers. High concentrations of chlorine sanitizers and caustic detergents will cause damage to metals and welds. Do not exceed 50 parts-per-million (PPM) "free" or available chlorine. Any setting higher than 50 ppm will be dependent on local health requirements, however, the increased chlorine will result in higher corrosion of metal parts. Purpose-built ware-washing dispensers are needed to properly meter chemicals for wash and rinse. These dispensers are included with this model. Manually adding industrial chemicals to the dishmachine is unsafe and not approved.

CHEMICAL LINES—Place color coded tubes into proper chemical containers. The containers need to be as close to the machine as possible and at floor level. This may require shortening of the flexible chemical transfer tube. On the control box, 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. Squeeze tubes should be replaced at least every six months.

WARNING

CONTAINERS: The ADS chemical delivery system is designed for 5 gallon pails of industrial low-energy chemical products. Always use chemical resistant safety gloves and safety goggles (indirect- vented or nonvented) when changing chemical buckets. Immediately report spills and refer to your chemical suppliers SDS safety data sheet or MSDS material safety data sheet for information if chemical come in contact with skin or eyes.

Any modifications to the chemical delivery system for smaller containers must include **Closed Loop Chemical Containers** (spill proof bottles) in a secured racking system. It is the responsibility of the user of the machine to purchase chemicals in spill proof containers. **FAILURE CAN RESULT IN SERIOUS INJURY**. Never place chemicals in open containers or containers that can be easily tipped over when moving or changing product. Failure to do so will void your ADS warranty.

AUDIBLE CHEMICAL ALARM OPTION—The optional chemical alarm (P/N 031-0326) uses a pressure switch with a barb fitting that extends from the control box and connects to the chemical line by means of a "t" fitting. The switch sends voltage to a buzzer located in the control box. Sensitivity is adjusted by an Allen wrench (5/64" or 2mm) to turn a screw located in the center of the barb (see photo above *). Remove the tube from the barb; turn the screw to the right for less sensitivity. Chemical buckets must be placed on the floor for the pressure switch to work.

Warning decal about mixing chemicals

Impeller damaged from high acid solution

Typical 90-second timer operation [Pump shut off] - [*sanitizer here]

START [------ **WASH 45-Sec** ------] **-** [-- **DRAIN 15-Sec** --] **-** [---- **30-Seconds to FILL and Rinse** ----] **END**

[*detergent here] [-Fill until FSP is reached-]

If a pressure gauge tester 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, when this sound is heard, that would be the point to turn the water OFF. Seven seconds of full spray arm rinse pressure is required by health code. In the event that air is trapped in the pump during fill, a vapor lock can occur where the pump is turning but there is no spraying.

If this vapor lock occurs, check incoming water temperature and reduce the temperature if it is above 140-150F. Operating temperature of 120F degrees (130F AFB) is the minimum, 130-140F degrees is recommended. If the problem is caused by low water pressure to the machine, then see the Plumbing Section above to correct that condition. If vapor lock is still present, electrically stop or pause the pump to release air. If the dishmachine has a 6-cam timer, this is done by moving the brown wire of the switch on the sanitizer cam. Move only this brown wire, which is normally connected on the top position of the sanitizer switch joined to a yellow wire, remove from the yellow and connect the brown to the center position taking care that the wires do not touch each other. When completed there will be a yellow wire on the top terminal, brown on the middle and green on the bottom terminal. If the machine has a 7-cam timer, this feature is wired into the 7th cam from the factory.

DOOR AND ARM SECTION

For the AF-3DS in-line model, a conversion kit (088-1061) is available to change to a corner configuration. For the AFC-3DS corner model, a conversion kit (088-1062) is available to change to an in-line configuration. The "AF-3DS-3-doors-up" model is not convertible. The AFB is not convertible.

Showing misaligned arms

Showing correct arm alignment

Care should be used in transporting and placing the machine, watch that the door arm is not twisted or bent. When dish tables are attached, watch that they do not bind and bend the door guides by lifting against the machine. This will cause binding of the guide on the door. When one door is standing above the top of the hood while the other door is resting down on the hood, this is caused by a door arm that is bent—hold one door arm handle down while lifting the handle of the other to align the arm handles. Use enough lifting force to bend the arm back into the correct position.

FINAL INSTALLATION CHECK LIST

1 Check to be sure power is disconnected at the breaker and the control box is switched OFF.

2 The master switch is located on the back of the control box for all Top Mount machines, under the control box on Front Mount machines. Open door and remove all packaging, save all instructions for future reference.

3 Remove the white protective film from doors, front panel, and control box.

4 Check dishtable placement, correct any binding or pinching caused to the dishmachine door guides by dishtables during installation.

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

6 To operate, turn on the main power circuit breaker and switch the dishmachine master switch to ON position. Remove spray arms and manually fill the machine with water using the fill switch (labeled FILL). This switch is located on the front or side of the control box. Run one complete cycle by closing the doors (optional auto/start machine only) or pushing the start switch (labeled START). This is the flush cycle, which removes installation debris from wash tank and pump.

Spray arm bearing with sealing o-ring

Spray arm end caps

AF-3DS spray arm (six jets)

7 AFTER FLUSHING — install the spray arms. These arms are interchangeable upper and lower. Failure to follow this flush procedure can damage spray arm bearings. Observe the water level decal. This decal is located on the outside of the sump area next to the drain tube of the machine. This mark is the approximate level for initial fill. Verify incoming water temperatures 120F degrees minimum, 130F degrees for the AFB (130-140F degrees recommended).

8 Inspect the sump area and verify pump filter is in place. Verify that chemical feed lines are in their proper container and that lines are primed. Post an operational wall chart close to the machine.

WARNING

Do not open doors while machine is in cycle. Doing so may result in serious bodily injury from spraying hot water and chemicals.

Notes

WARNING!

This product is manufactured solely for **commercial** use.

It is not to be used in residential installations of any kind. Doing so will immediately void all warranties.

American Dish Service assumes no liability for such unintended uses.

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Manufacturers of Ware Washing Equipment

SERIAL #: _____

MODEL #: _____

DATE: _____

Checked:

- ☐ 1 Drain Ball - seated properly
- ☐ 2 **No leaks around nuts & bolts**
- ☐ 3 Chemical pumps traced, through prime switches, for proper operation *

Detergent	**Rinse Aid**	**Sanitizer**
☐ Prime	☐ Prime	☐ Prime

- ☐ 4 **Pump - free from leaks.**
- ☐ 5 Plumbing - free from leaks.
- ☐ 6 **Tight nuts and bolts**
- ☐ 7 Tight drain linkage.
- ☐ 8 **Spray arms rotate freely.**
- ☐ 9 Spray arm end plugs - secure.
- ☐ 10 **Spray arm pressure - 16 PSI minimum.**
- ☐ 11 Smooth door operation.
- ☐ 12 **Smooth rack operation.**
- ☐ 13 Nameplate properly installed and engraved.
- ☐ 14 **Decals properly installed and are straight.**
- ☐ 15 Overall machine operation is to standard.
- ☐ 16 **Overall machine cleanliness is to standard.**
- ☐ 17 General appearance of machine is free from scratches, dents, etc.

ELECTRICAL SAFETY

- ☐ 18 **Hi Pot Test - passed to standard**
- ☐ 19 Ground Test - passed to standard

I certify the above items have been checked and meet or exceed established American Dish Standards

Inspector: _____

***CUSTOMER NOTE: Cam adjustment varies with chemical concentrations. Adjust factory settings accordingly.**