DOUGLAS
WASHING AND SANITIZING SYSTEMS

Recommended
Installation Guide

Parts & Service 800-331-6870

DougMac.com

DOUGLAS
WASHING AND SANITIZING SYSTEMS

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PLEASE NOTE: ALL MACHINES AND ELECTRICAL CONNECTIONS TO MACHINES MUST COMPLY WITH ALL LOCAL, STATE, AND FEDERAL CODES.

FAILURE TO FOLLOW THE INSTALLATION GUIDE COULD RESULT IN

LOSS OF WARRANTY.

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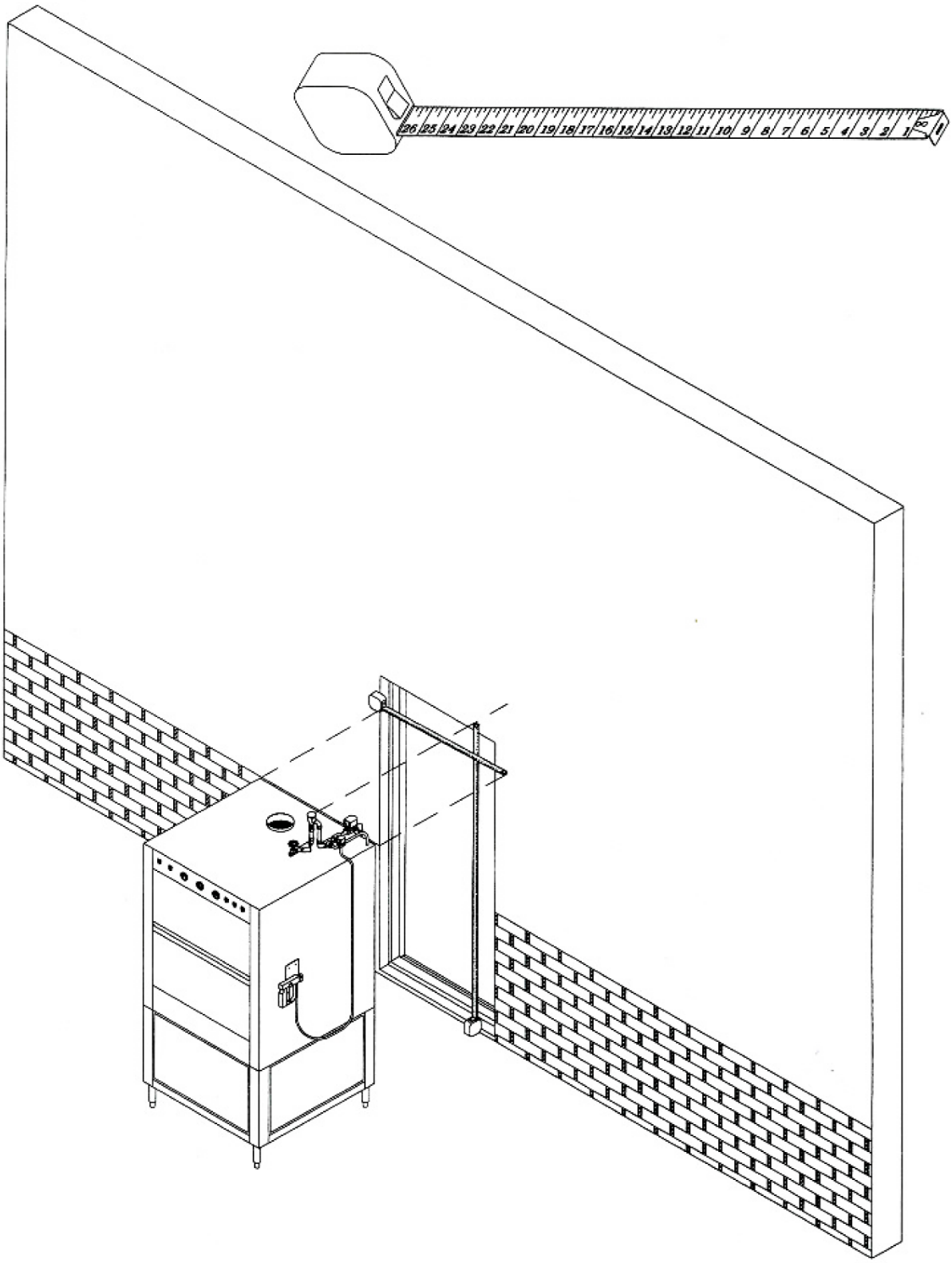
SAFETY

Qualified installation personnel, individuals, firms, corporations, and companies are responsible for:

- Wear appropriate P.P.E. ie... hearing protection, thermal resistant gloves, and eyewear.
- Know where the **exits** are located.
- Always turn off and drain the machine before entering. Allow a cool down period. Follow facility's L.O.T.O. procedure.
- **Never** enter a machine where flooring has been removed. – Fall Hazard.
- Use non-permit required confined space guidelines for entering.
- When loading a rack into the washer keep hands away from the door edges. Keep hands on the horizontal bars inside of the rack. **Do not** hold racks on the vertical support bars or outside edges. Push the rack with both hands. Never strain yourself to move racks if racks are too heavy unload some product.
- Always use Caution. – Use mats to help reduce slip hazards.
- Ensure that float switches and level probes are well maintained and cleaned daily. Failure to do so can result in unintended heater startup and potential fire.
- **Never** leave your machine idle (not in use) for more than 4 hours. This can result in water evaporating out of the rinse tank causing damaging. Do not touch Rinse tank without a cool-down period.

PLEASE MEASURE ALL DOOR OPENINGS AND PASSAGEWAYS TO MACHINE'S FINAL LOCATION FOR CLEARANCES.

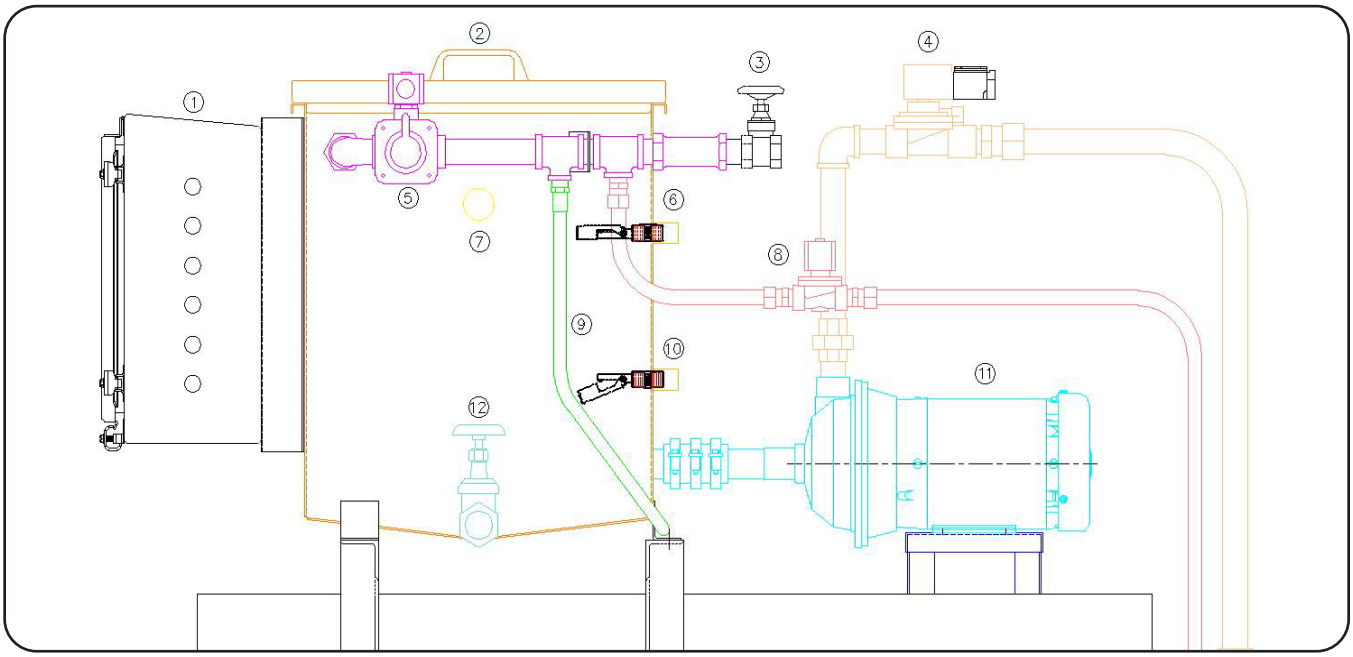


PLACEMENT

When choosing a location for your machine please consider the following factors.

- Check all doorways, hallways and ceiling heights to allow entry. Check the dimensions of the machine from the installation drawings supplied.
- Certain items may be able to be removed from top or around the machine. Consult the factory for details.
- Are all necessary utilities able to be accessed?
- Can all venting (gas & steam) be installed correctly. (See Venting Section)
- Serviceability, leave space around machine for service maintenance. Note some codes also include clearance requirements. Reference installation drawing.
- If unit is going to be installed in a pit, check that the pit depth will not interfere with existing plumbing lines and floor drain will be accessible.
- Ensure that the unit can be installed level.
- If ramp is going to be used ensure it will not block a pathway.

RINSE PUMP



1) Electrical Enclosure & Controls
2) Rinse Tank
3) Manual Shut Off Valve (By Customer)
4) Rinse Solenoid Valve
5) Rinse Tank Fill Solenoid Valve
6) Float Switch (Top) Level Control
7) Overflow Connection - 1 1/4” NPT
8) Wash Tank Fill Solenoid Valve
9) Spray Hose
10) Float Switch (Bottom) Low Water Protection
11) Rinse Motor & Pump
12) Drain Valve 1 1/4” NPT

NOTE: Float switch items #6 & #10 are shipped with wire ties secured around them and need to be removed during instllation. If unit was purchased with pumped rinse tank option, refer to specific installation drawing or contact factory for installation assistance.

PRE-INSTALLATION

Certain Washers may require the rinse tank to be mounted in the field.

Most Pan Washer with IR rinse tanks also need to be installed by customer.

Mount rinse tank assembly on to the studs located on rinse tank support channels. Reference install drawing for proper placement and orientation.

Connect rinse discharge pipe to rinse tank discharge pipe and machine rinse inlet.

Connect conduit and coil labeled rinse solenoid coil to rinse solenoid valve labeled rinse solenoid valve.

Connect conduit and coil labeled auto fill solenoid coil to auto fill solenoid valve labeled auto fill solenoid valve.

Connect fill line labeled fill line to auto fill solenoid and machine fill line labeled machine fill line.

Connection of rinse tank heat source

Electric heat

Run conduit and wire to access hole in heater junction box, connect wires to indicated lugs, secure conduit to access hole.

Steam heat

Connect incoming steam line to coupling marked “incoming steam”, see installation drawing for appropriate line size for your land pressure machine.

Gas Manifold

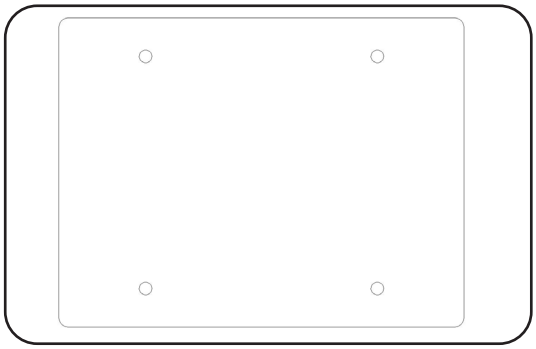
Connect gas supply line to incoming gas valve, See installation drawing for appropriate line size and gas supply pressures for your machine.

If washer was purchased with steam extraction fan and or hood these will need to be installed.

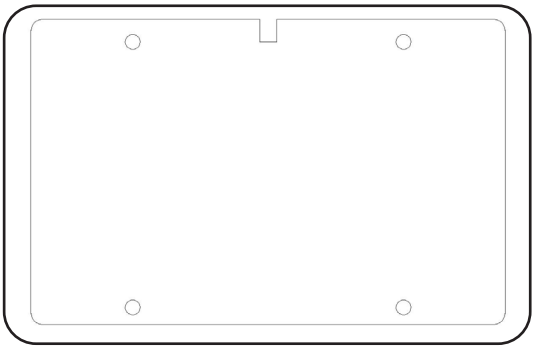
Rack Washer 12” dia. steam extraction fan installation.

Apply a liberal bead of silicone around the edge of the vent hole where the fan will be mounted. The baffle plate on the inside of the unit will need to be removed to bolt the fan down.

Rack Washer Steam Exhaust Baffle Plate



LD-20-PT - LD/SD36 Steam Exhaust Baffle Plate



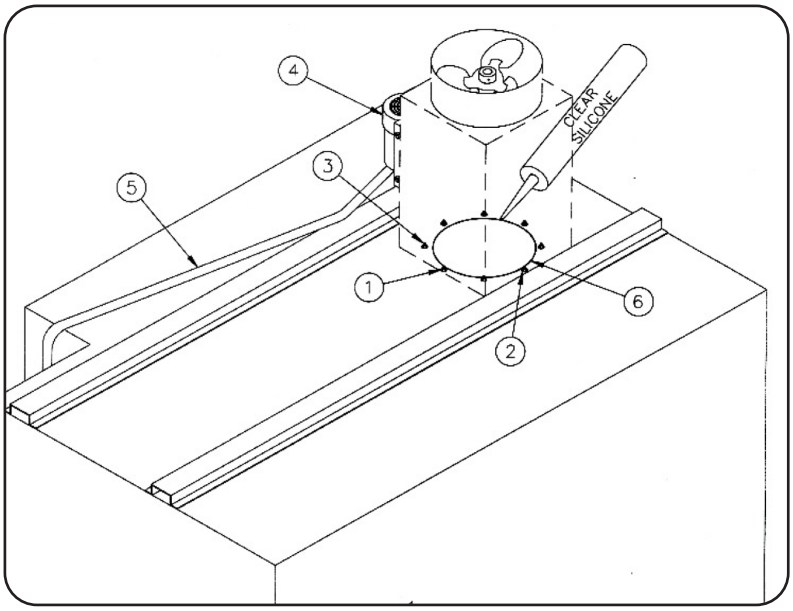
Baffle Plate is removed from the inside of the machine. This is necessary to install a 12” Douglas Steam Exhaust Fan.

Mount the fan to the studs located on the top of the machine in the circular pattern. The correct orientation of the fan is to have the exhaust fan motor on the same side as the conduit and wire that is labeled exhaust fan. Secure fan with nuts & washers .

Run the conduit and wire to the junction box on the exhaust fan motor. Connect wires in accordance to diagram on name plate and secure conduit to the junction box. Confirm voltage with install drawing.

(Note the motor orientation in the following drawing before installing the fan)

Item	Description
1	5/16” Lock nuts (16)
2	5/16” Washer (16)
3	5/16” X 1/2” Studs (16)
4	Conduit & Wire Exhaust
5	Exhaust Fan Motor
6	Place a bead of clear silicone around the edge of the vent hole. Bold fan down to studs (food grade).



ELECTRICAL CONNECTIONS

Installations should be completed by a professional.

Illustration #1 Shows Pot, Pan, and Utensil Washer electrical connections.

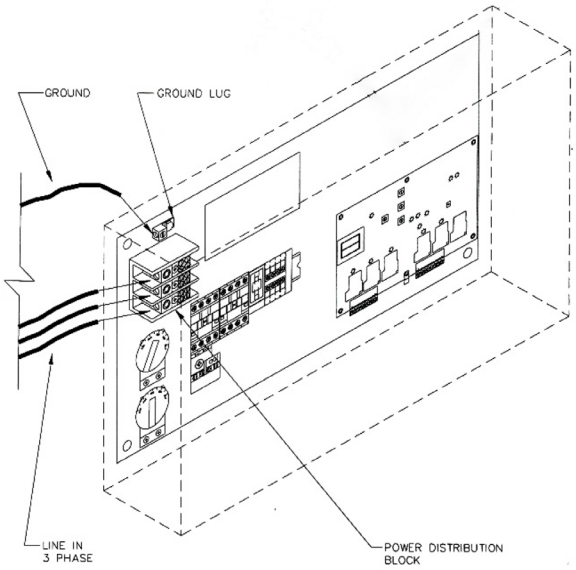


Illustration #1

Illustration #2 Shows Rack Washer electrical connections.

All electrical connections should be made by a qualified electrician and should comply with all local, state, and federal codes.

Single or 3 phase main connection.
Refer to specific electrical drawing. and or specification sheet supplied with machine, for recommended service size and voltage. Connect to power distribution block or disconnect if provided.

Connect suitable ground to ground lug. Reference electrical schematic for wire size and type.

WARNING: ENSURE ALL POWER IS TURNED OFF BEFORE ATTEMPTING TO DO ANY WIRING IN ELECTRICAL PANEL.

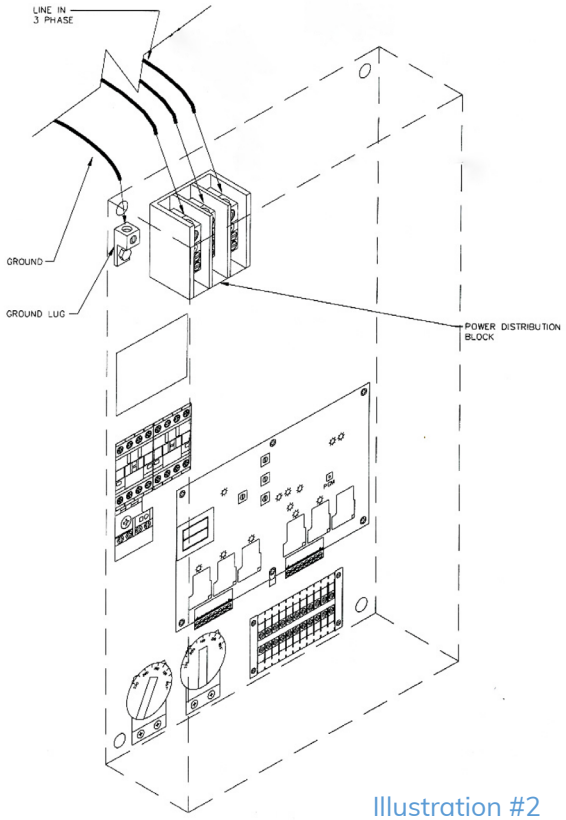


Illustration #2

INCOMING WATER CONNECTIONS

Rack Washer incoming water connections are shown in Illustration #3. Wash tank fill depends on specific model. Maximum usage after wash tank is full for the Rack Washers are 120 gal., per hour. LD and SD 36 washers fall under Rack Washer.

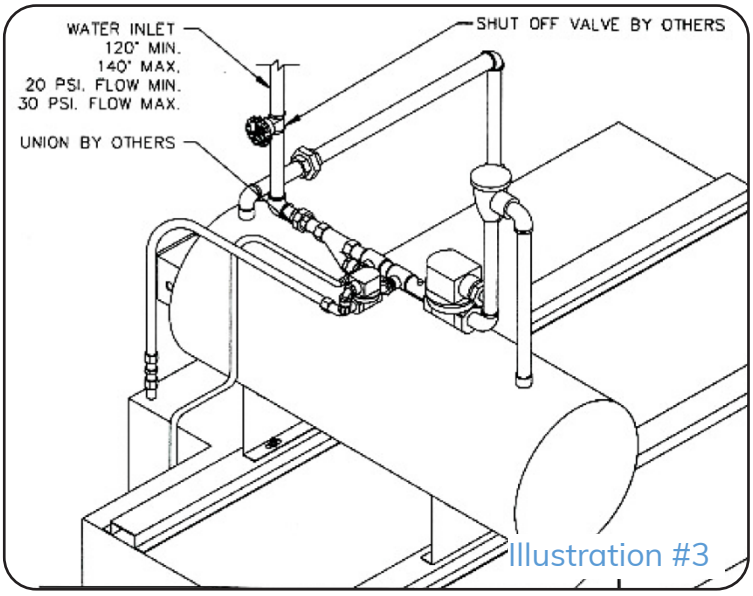


Illustration #3

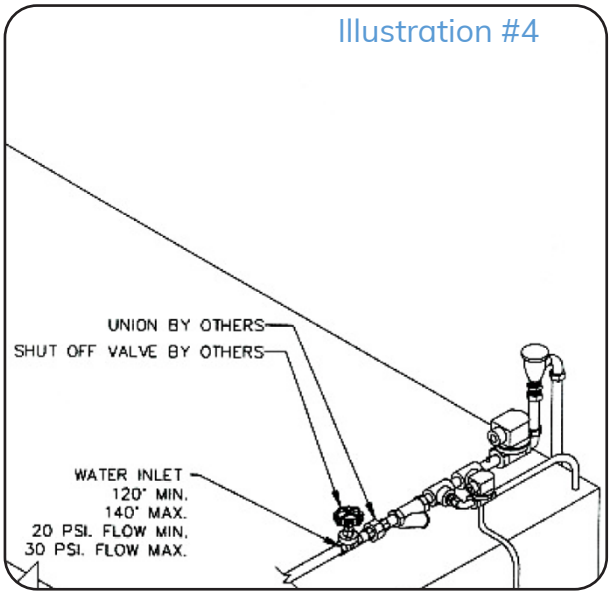


Illustration #4

Pot, Pan, Utensil Washer incoming water connections are shown in Illustration #4. Wash tank fill depends on specific model. Maximum usage after wash tank is full for the Pot, Pan, Utensil Washers is 60 gal., per hour.

Refer to installation drawing or specification sheet for incoming water pipe size.

Incoming water temperature must be between 120- and 140-degrees Fahrenheit. (Consult a factory representative if these temperatures cannot be achieved.)

Incoming water pressure is to be 20 psi minimum, and 30 psi during flow not static pressure. To achieve these pressures, use of a pressure regulating device may be necessary.

When connecting incoming water supply, install a shut-off valve and a union at the location shown on illustration or as close to machine as possible.

DRAIN CONNECTIONS

When running a drain for a Pot, Pan, Utensil Washer refer to Illustration #5 or Illustration #6. Both are acceptable.

When running a drain for a Rack Washer refer to Illustration #7 or Illustration #8. Both are acceptable.

NOTE: YOU CANNOT RUN DRAIN AND OVERFLOW LINES ABOVE THE BASE CHANNEL OR PUT THE PANEL BACK. YOU WILL NOT BE ABLE TO INSTALL PANEL. REMEMBER TO PREVENT A TRIP HAZARD.

Refer to installation drawing or specification sheet for drain and overflow line size.

Illustration #5 shows the drain and overflow lines for Pot, Pan, Utensil Washers interconnected. This is an acceptable connection if the overflow line is connected on the outgoing side of the drain valve.

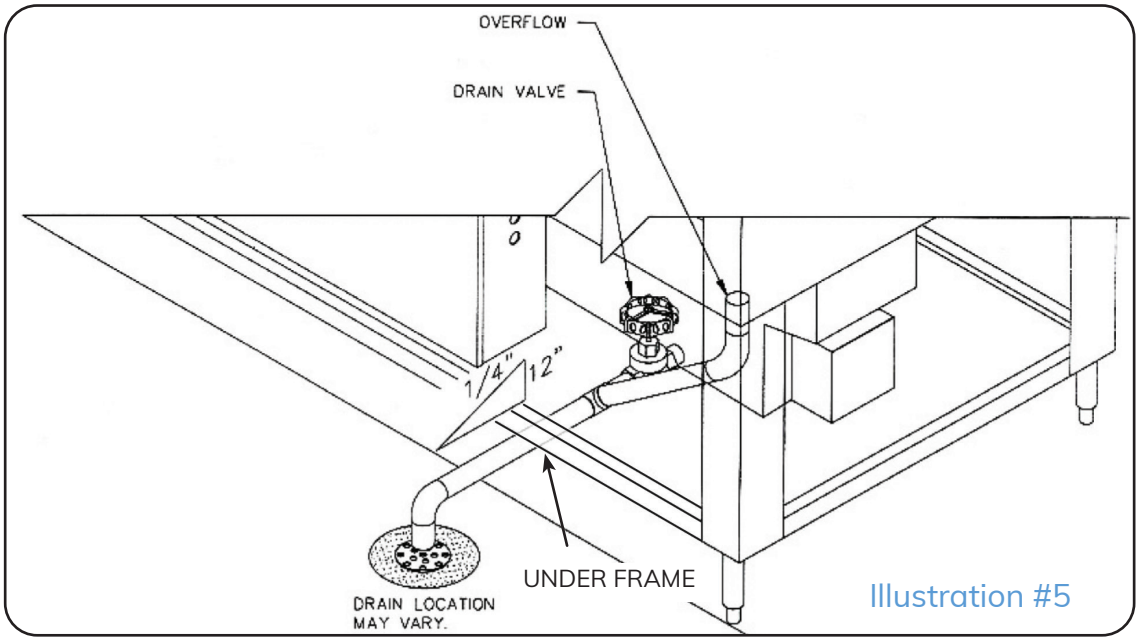


Illustration #5

Illustration #6 shows the drain and overflow lines connected separately. This is also acceptable if your floor drain is large enough to accept both lines.

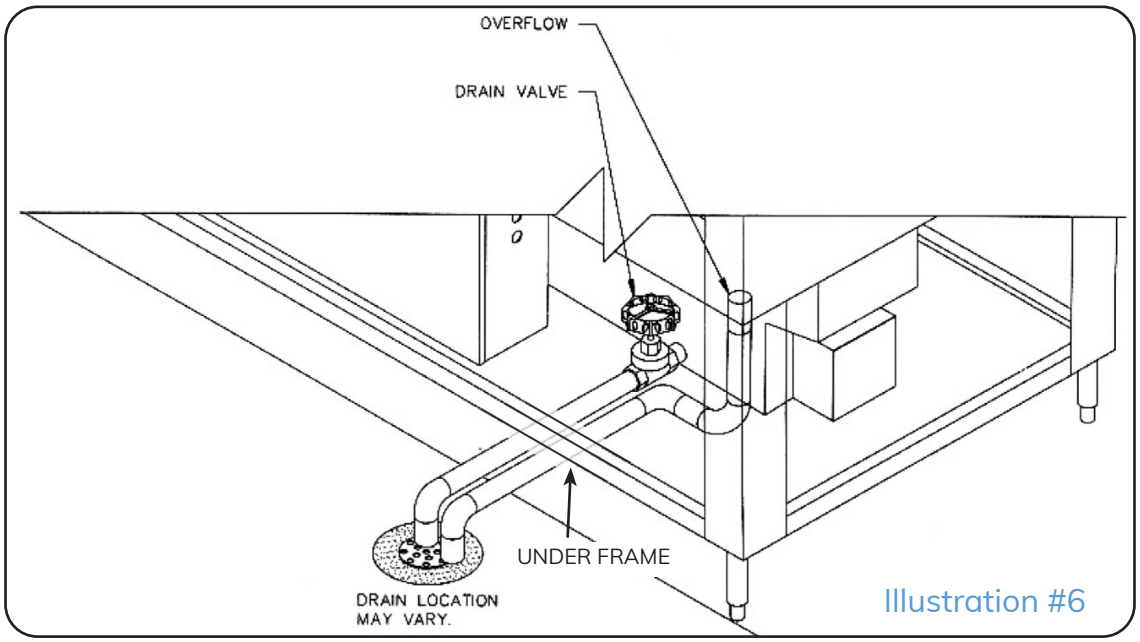


Illustration #6

Illustration #7 shows drain, and overflow lines interconnected on a Rack Washer in a pit. Both these lines need not run all the way to the pit drain but must run far enough away from machine in order that splashing water does not affect any components of the washer.

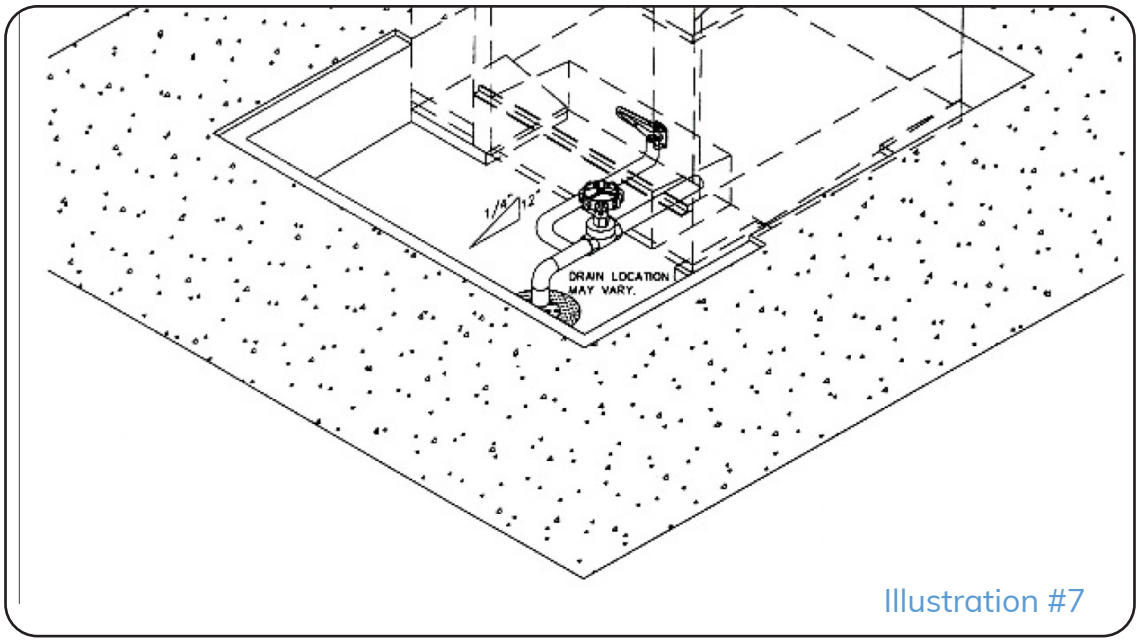


Illustration #7

Illustration #8 shows separate drain and overflow lines on a Rack Washer in a pit. This is acceptable as long as you follow the guidelines described in paragraph D above.

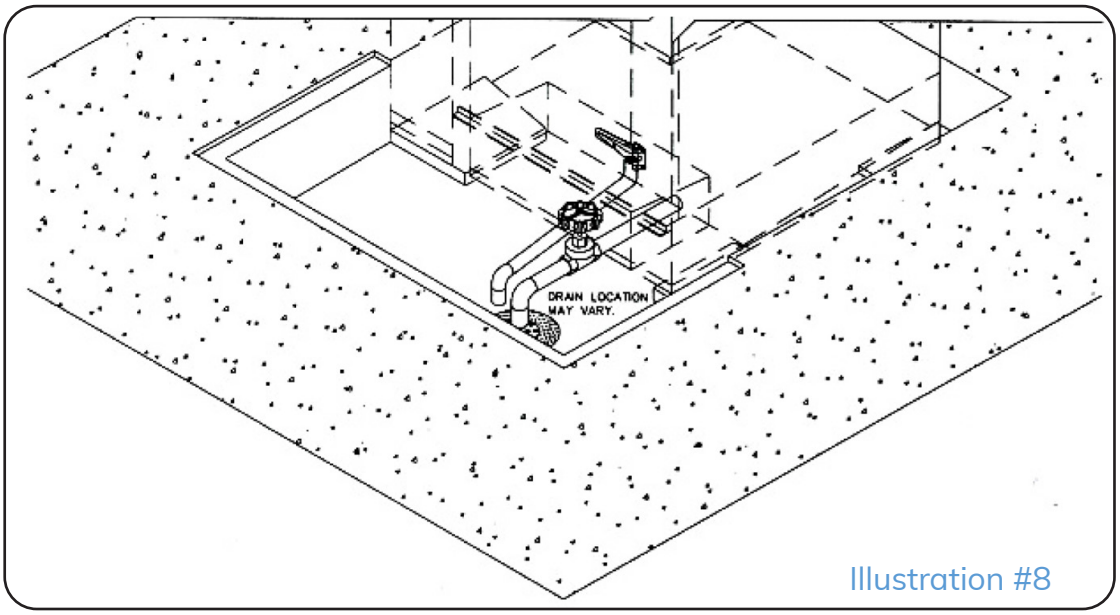


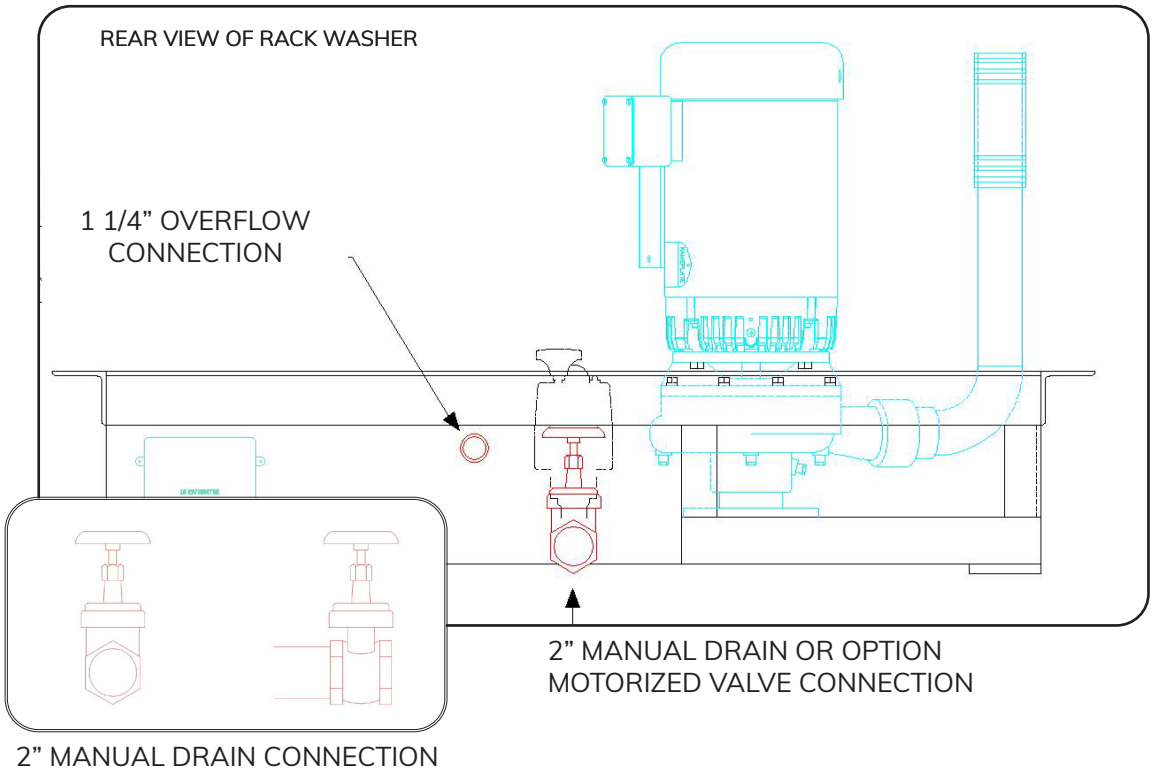
Illustration #8

When running drain and overflow lines to a Rack Washer not in a pit, make sure it is not in the way of the ramp or rack dolly.

When running drain lines, be sure to maintain a minimum 1/4” of slope to every 12” of distance.

Materials that are suitable for drain and overflow lines: Check local codes

CPVC - Copper - Brass - Stainless Steel



INCOMING GAS CONNECTIONS

Illustration #9 for correct way to install the incoming gas lines on both Pot, Pan, Utensil Washers and Rack Washers.

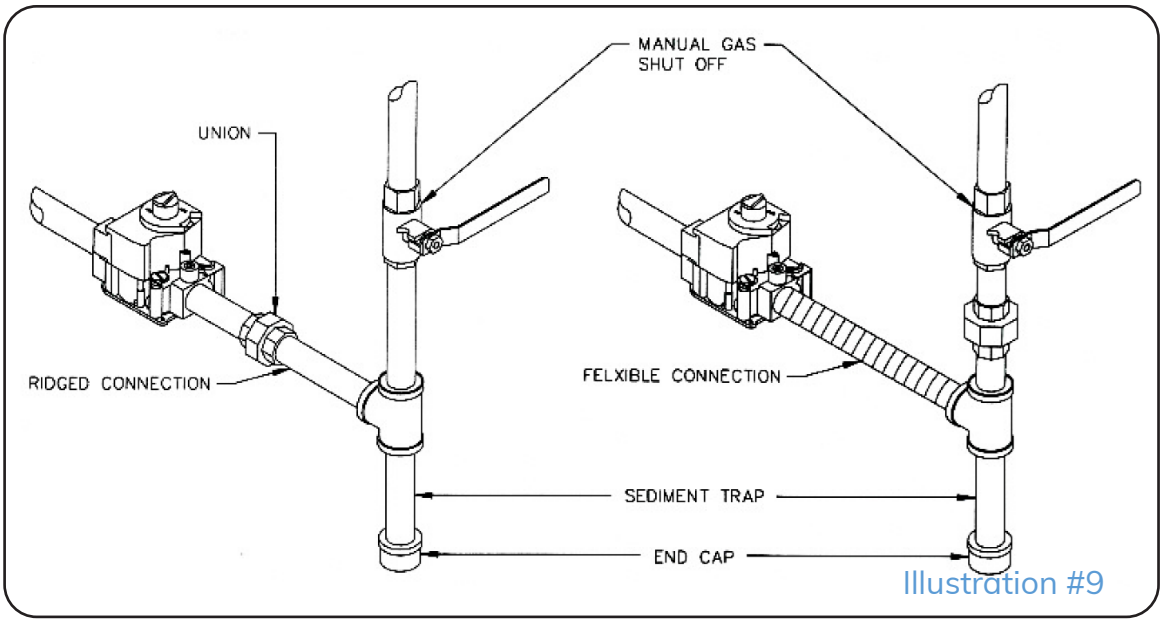


Illustration #9

THESE ARE SUGGESTED INSTALLATION CONNECTIONS. ALL LOCAL CODES SUPERSEDE INSTALLATION.

Illustration #10 shows an incorrect installation.

Refer to installation sheet and or specification sheet for BTU's, number of lines needed and size of incoming gas lines and supply pressure requirements.

Always follow local, state, and federal codes when installing gas lines.

Incoming gas pressure must be maintained between 6" W.C. and 14" W.C. Failure to maintain these pressures may cause operational problems and void the warranty on your gas burner system.

If you cannot install a shut-off valve and union as illustrated, install these items as close to gas valve as possible.

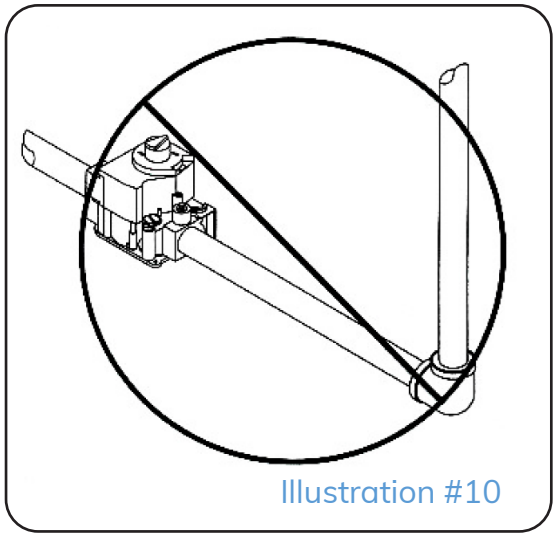


Illustration #10

STEAM LINE CONNECTIONS

Illustration #11 for correct way to install the incoming and return steam lines for Pot, Pan, Utensil Washer and Rack Washer rinse tanks. (Coil Type with Return System)

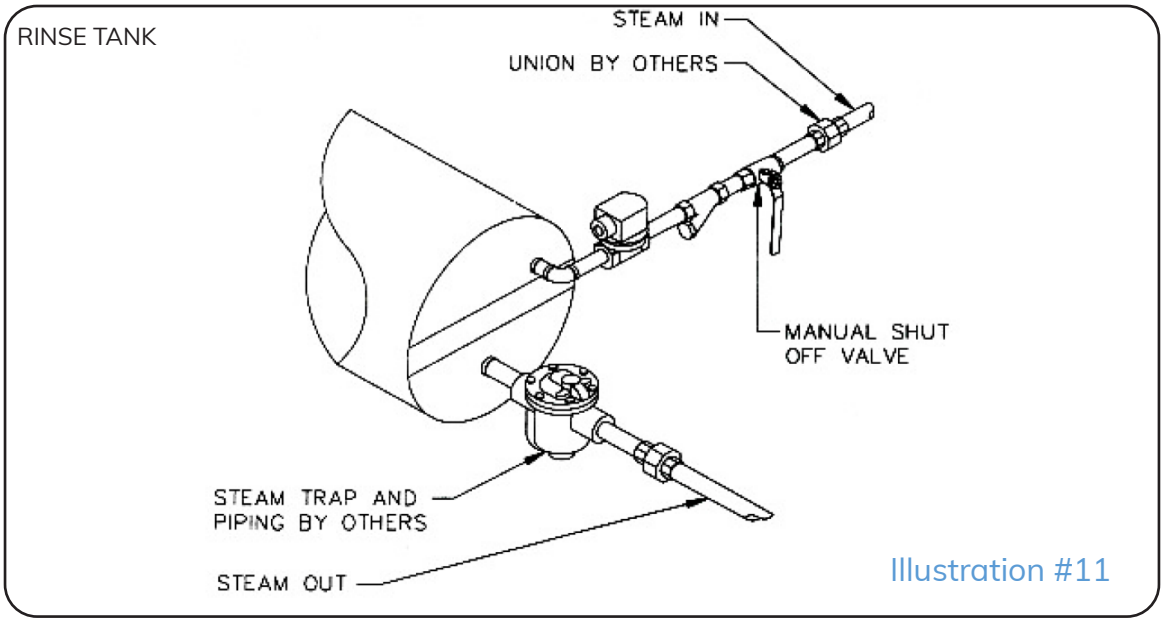


Illustration #11

Illustration #12 for correct way to install the incoming and return steam lines for Pot, Pan, Utensil Washer and Rack Washer wash tanks. (Coil Type with Return System)

Refer to installation sheet and or specification sheet for pressure consumption, location and size of incoming and return steam lines.

Install unions and steam traps as shown in illustrations.

If returning to the boiler, make sure all valves on the return line are fully open when starting.

If a live steam system is to be used, check installation sheet for location and size of incoming steam line. Check specification sheet for consumption.

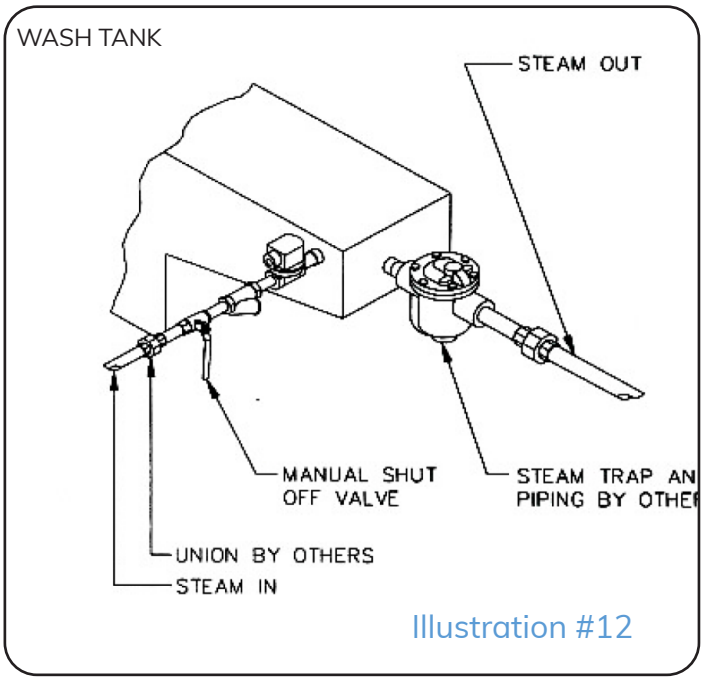


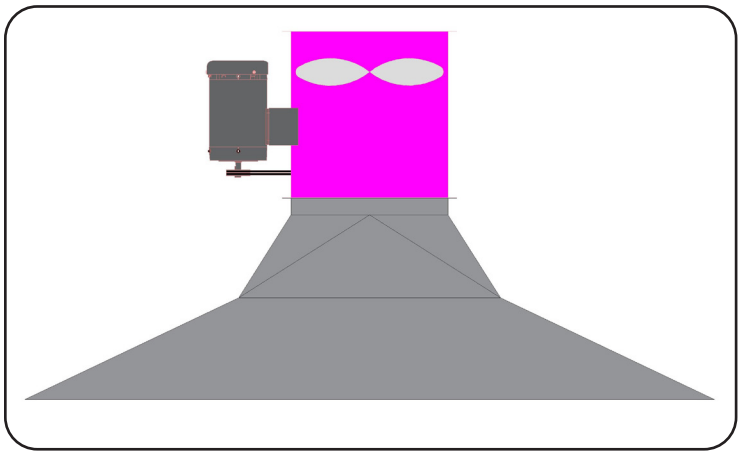
Illustration #12

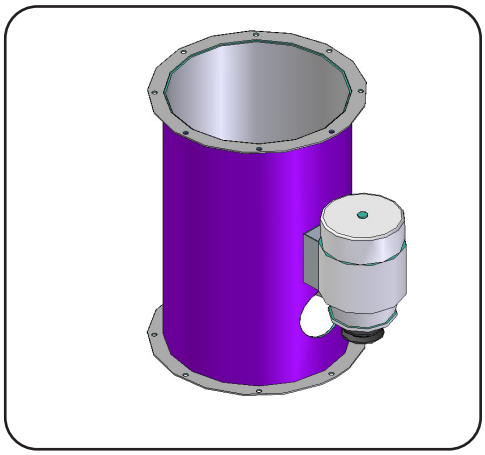
(STEAM INLETS & OUTLETS LOCATIONS MAY VERY)

STEAM EXTRACTION VENTING

Steam Extraction Venting is very important. If not correctly installed, you could have an over-abundance of steam and water coming out of the door, both during operation and upon completion of cycle. Please follow these installation guidelines and all local, state, and federal codes. Reference installation drawing for steam vent connection point(s) and size.

The following illustrates shows a Rack Washer with multiple steam vent connections. It shows a connection for a hood fan and a cabinet fan. It also shows a single point connection for the cabinet only. Most importantly, it shows the most efficient way to install your venting, that is, as directly as possible.





If a fan other than the one purchased with the unit is needed or used, make sure it is wired to operate only after wash and rinse cycles are complete. (Contact factory for details.) If the fan is wired incorrectly and operates during the cycles, you will not maintain operating temperatures.

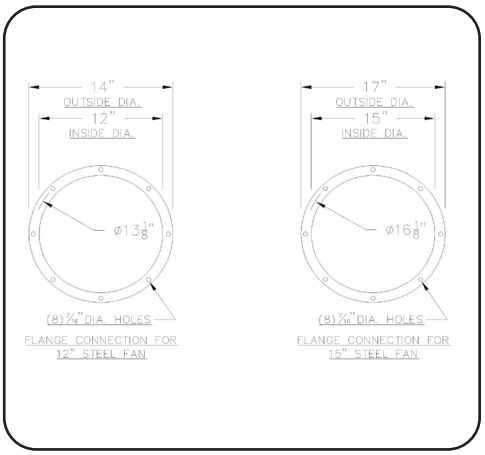


Illustration #19 shows the most efficient way to install venting on a Pot, Pan, Utensil Washer. If steam extraction fan option was purchased, this fan will need to be installed in the duct. See instructions in fan box. The washer will be prewired for fan. You will find plastic conduit and wire on top of the machine, labeled steam extraction fan. Connect these to fan. Follow all other guidelines described above for proper vent installation.

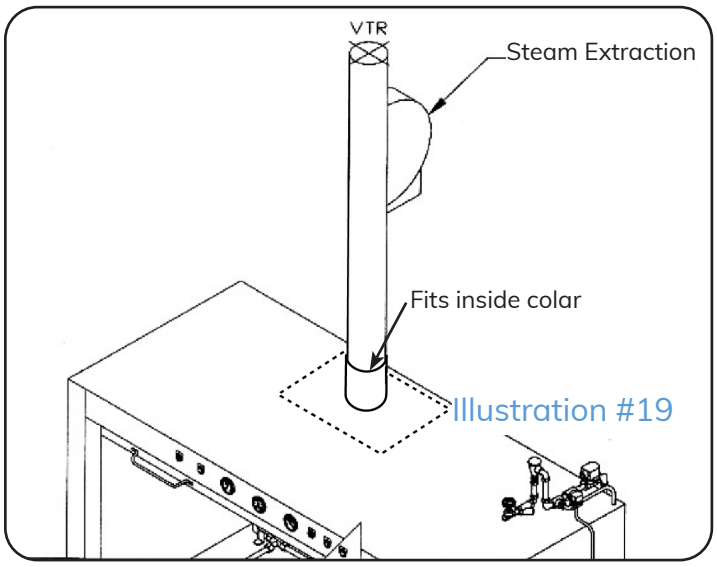
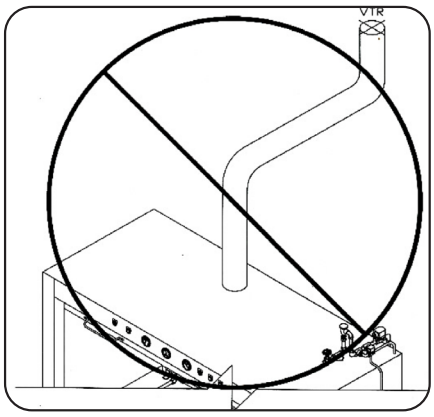
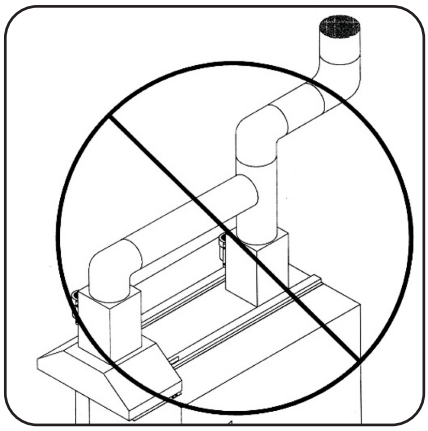


Illustration #19





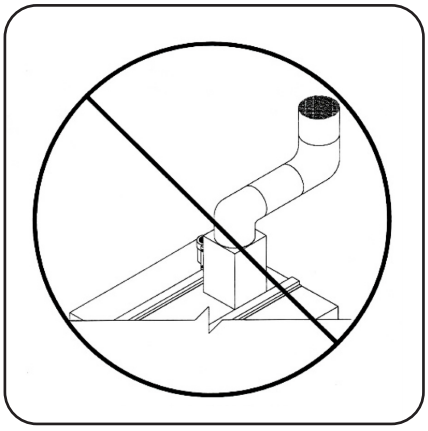
If machine is going to be located under a complete hood. You will still need a short steam vent pipe approximately 24” tall to prevent water from spraying out of the vent collar and accumulating on top of machine.

Vent sizes and recommended duct materials.

All Rack Washers are supplied with a 12-7/8” I.D. vent collar.

All Pot, Pan, Utensil Washers are supplied with a 6-5/8” I.D. vent collar.

Vent collars are sized to accommodate 12” PVC on Rack Washers and 6” PVC on Pot, Pan, Utensil Washers. PVC is our recommendation for material to be used. Stainless Steel can also be used. Adapters or new collars can be manufactured to suit other vent sizes. If Stainless Steel is used, make sure all connections are sealed to allow for condensation to run back into unit. Ensure vent piping fits inside the collar on the machine or fan.



GAS FULE VENTING

(Note: Do not use diverter and dampener in the same application.)

It is very important to correctly install the gas flue. If the flue is not correct you can expect many problems with the heating systems. You will not be able to achieve consistent performance or be able to maintain correct temperatures. So please, follow these guidelines carefully, and adhere to all local, state, and federal codes.

Douglas Machines Corp. currently uses two (2) types of gas burner systems. One a normally aspirated infrared system and the other a power blower open flame type system. The information in this guideline is applicable to both burner systems.

Refer to installation sheet and or specification sheet per specific model for BTU ratings. Size flue according to BTU rating and distance of run. Use only B-type flue material. It is important that you maintain a .045" W.C. draft. If this is not maintained, you will not achieve correct operating temperatures and your warranty may be void and the room may have high CO level. A licensed contractor should be used.

Illustration #21 shows a gas flue on a Pot, Pan, Utensil Washer. Notice it shows a barometric draft control and a draft inducer fan. The barometric draft control must be used, and the draft inducer fan may be necessary to achieve required draft. You must use a fan if any 45 or 90 degree bends and or any horizontal runs are used in the gas flue. If you need to purchase a fan, we recommend a rating of at least 175 C.F.M. at 3/4" static pressure. Electrical power will need to be supplied to this fan; machine is not pre-wired unless purchased with a draft inducing fan.

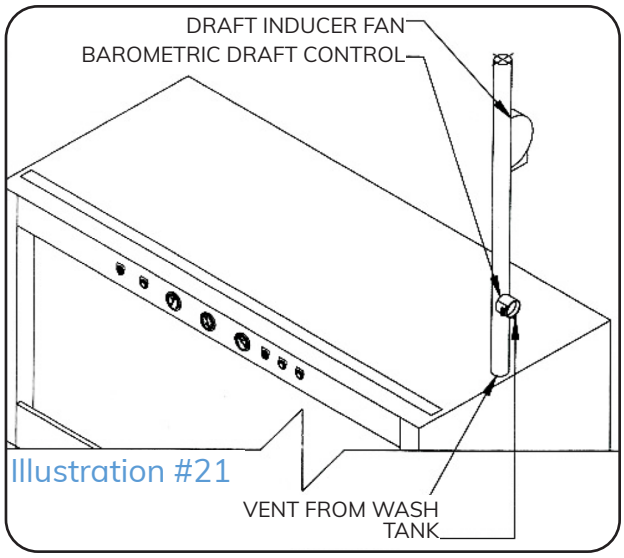
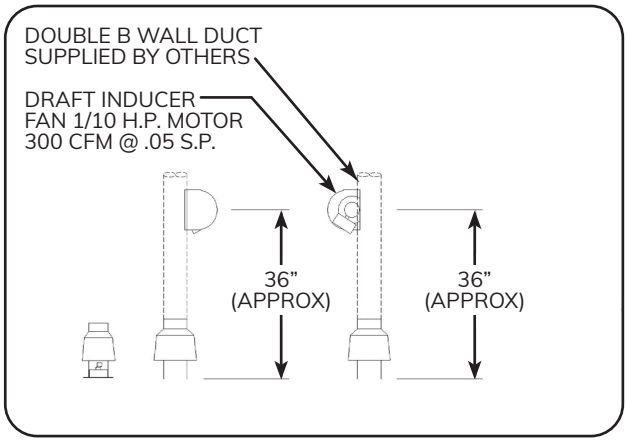


Illustration #21



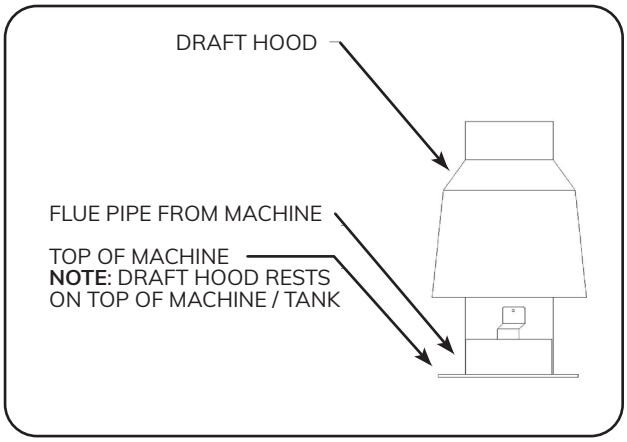


Illustration #22 shows to avoid 90-degree bends and horizontal runs. It also shows an incorrect position of the barometric draft control and the draft inducer fan. The barometric draft control must be mounted approximately 6” above the top of the machine. The draft inducer fan must be mounted in the center of the horizontal run. If no horizontal run is used, the fan should be mounted 3 to 4 feet above the barometric draft control.

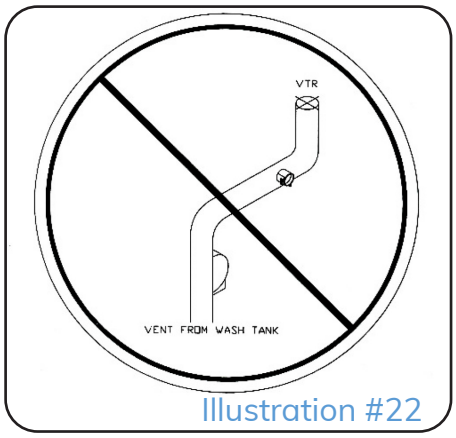


Illustration #22

Illustration #23 shows the gas flues on a machine that has both gas heated wash and rinse. It is recommended you run wash and rinse flues separately. You must maintain a .045” W.C. draft on each individual flue.

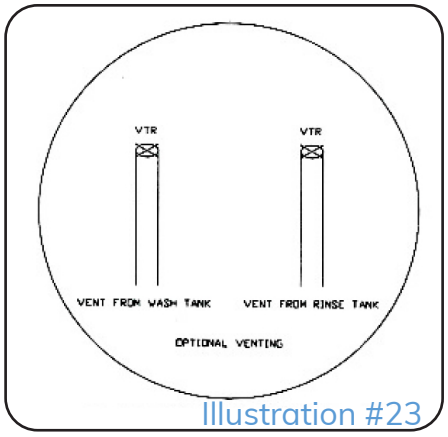


Illustration #23

Illustration #24 is showing examples of incorrect methods for interconnecting the individual gas flues. If you have any questions on any of these guidelines, please feel free to contact a factory representative.

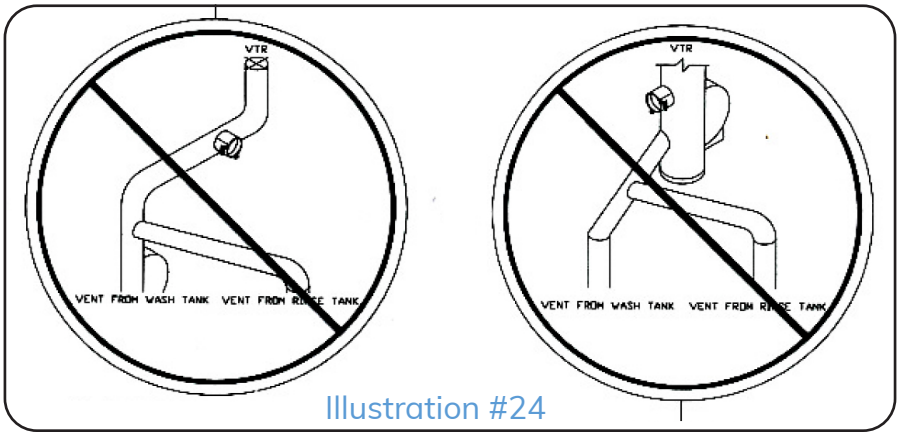
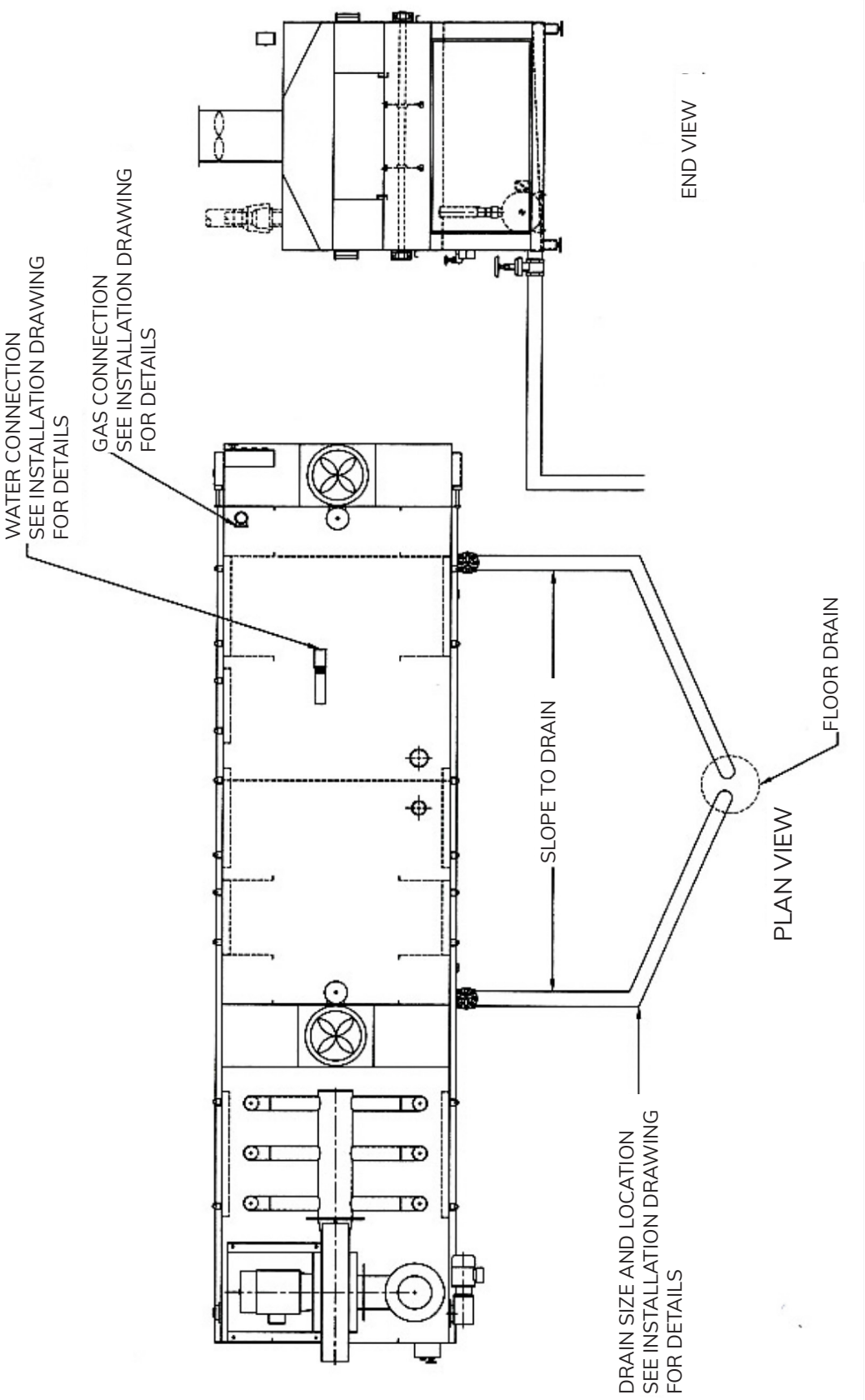


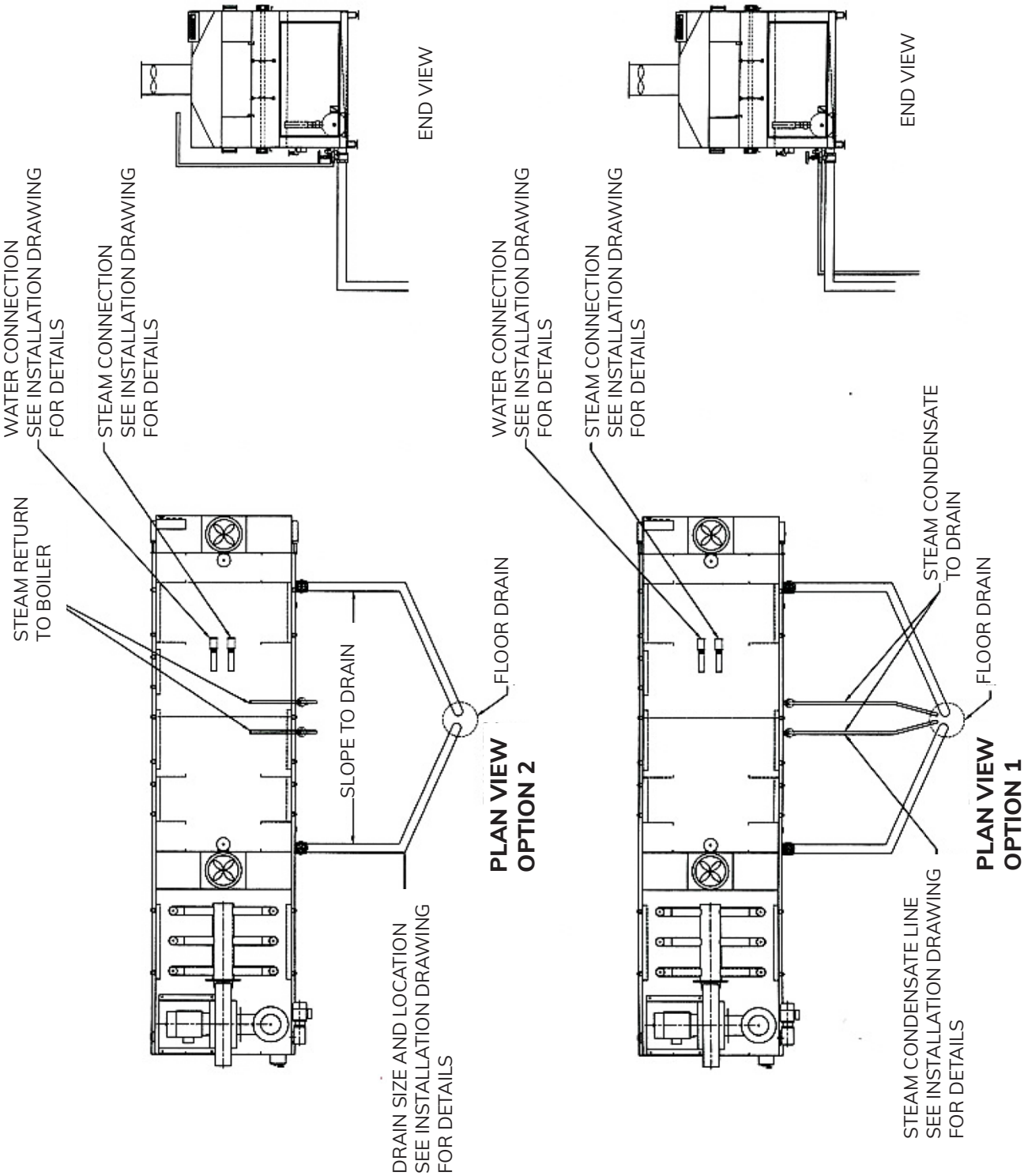
Illustration #24

DRAIN, INCOMING WATER, AND INCOMING GAS LINE CONNECTIONS-GAS HEATED UNITS

Conveyor



DRAIN, INCOMING WATER, INCOMING STEAM



CONDENSATE CONNECTIONS - STEAM HEATED UNITS

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Important Numbers

For warranty work you must call **DOUGLAS MACHINES CORP**.
We will issue a purchase order to the local service agent.

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