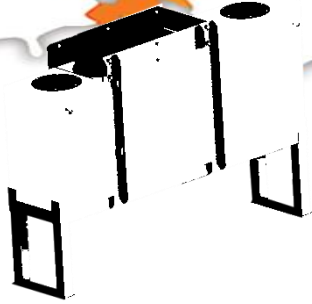
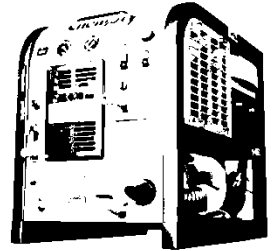


# Chem-Dry CTS 400 Flex Installation and Operation Quick Reference Guide



*The purpose of this document is to guide you through the installation process for the CTS 400. Before starting the installation please read through this document in its entirety to fully understanding what is required. Any questions concerning the installation please contact either HydraMaster or Chem-Dry using the phone numbers provided in this document.*



## Disclaimers

This guide and all items included with the CTS 400 Flex standard packages are designed to be installed in a standard cargo van. Installs in Transits, ProMasters, or NVs may require hoses and wiring harnesses to be extended.

## IMPORTANT

**This guide is representative of a general installation for the CTS 400 Flex. Installations should be verified and approved by the customer. Customer requests or any deviation should be noted in the installation paperwork.**

The installation must maintain the basic installation guidelines per the owners manual and HydraMaster Training Programs. Any questions concerning this installation please contact HydraMaster Tech Support at (800) 426-1301.

Examples of installation requirements: 12" air gap around the machine must be maintained at all times to provide adequate circulation. The front of the machine must be within 6-8 inches of the side or rear door, while allowing for clearances to close the door. This maintains the correct temperature into the grill of the machine.

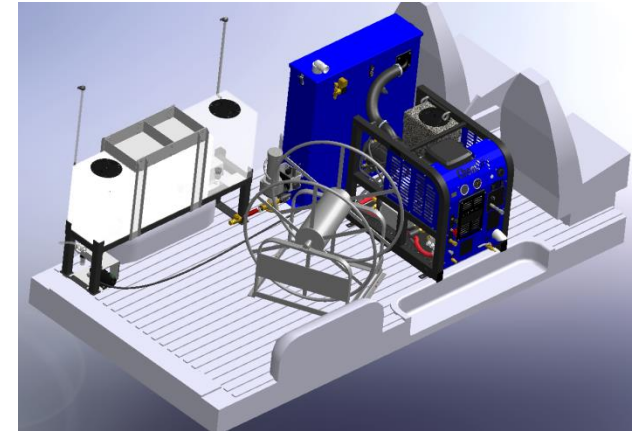
- 1 Read the owners manual thoroughly for more information.

# Installation Requirements

The CTS 400 Flex installation is very similar to a Boxxer 318 with a side saddle freshwater tank and pump in pump. In general, these installs can take anywhere from 12-15 hours depending on additional accessories or requests from the customer.

Items such as flooring, Rhino coating, and all other vehicle prep are the responsibility of the customer or to be arranged between you and the customer if you provide these services.

**Note:** There are items not supplied by HydraMaster that should be verified by Chem-Dry on the proper installation of the components. As an example, the Chem-Dry compressor may require the passenger seat to be removed for installation. You can contact the Chem-Dry Tech Support line at (435) 755-0255 if you have any questions.



\*\*Optional through floor exhaust kit shown

# Recommended Layout

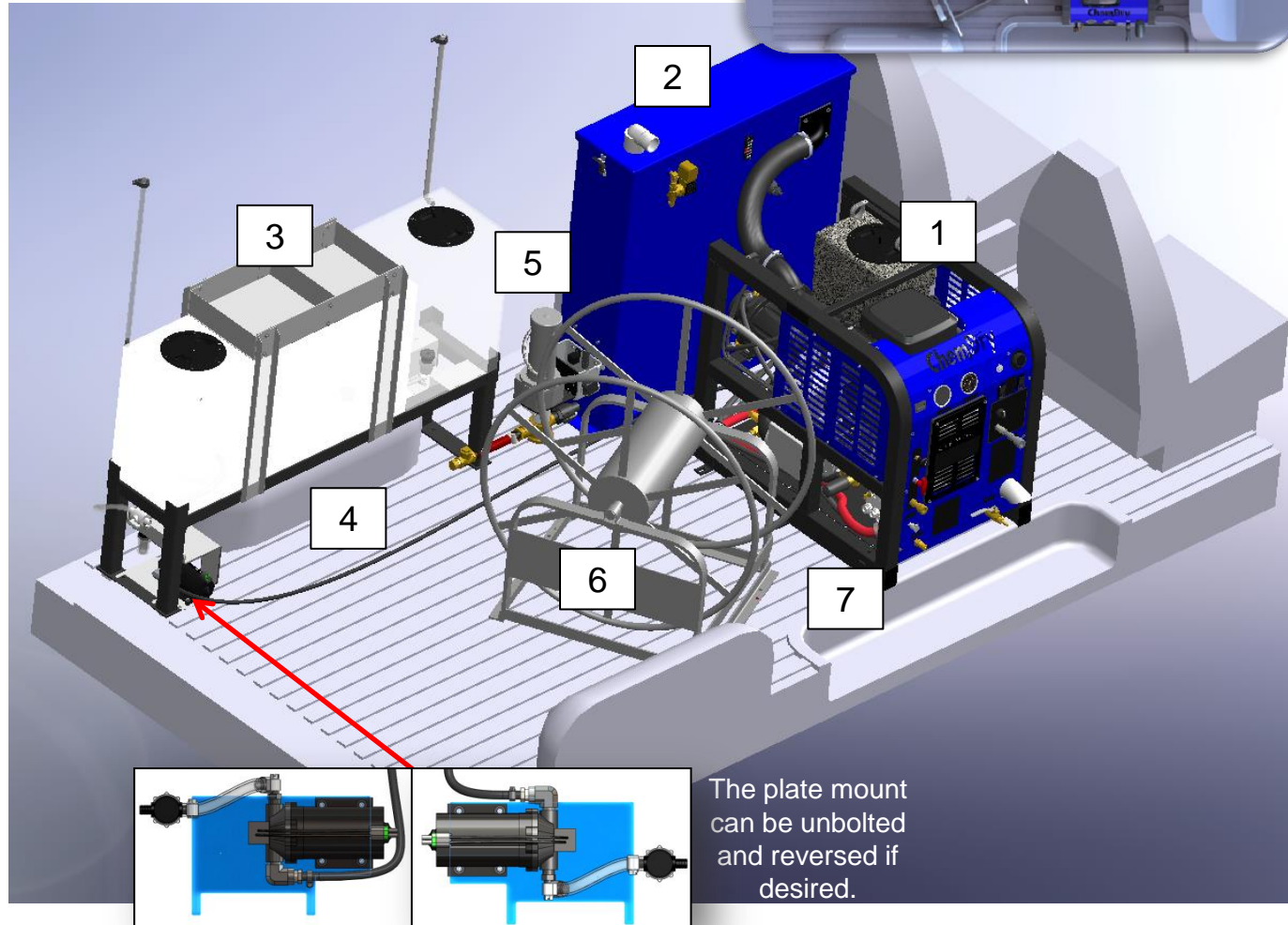
## Items Included with the Installation:

1. CTS 400 Flex
2. 65 Gallon Recovery Tank
3. 15/35G Flex System or 50G Flex System
4. Flex Pump in System
5. Automatic Pump Out (Optional Equipment)
6. Hose Reel (Not included with package) Provided by ChemDry
7. Optional Remote hose panel kit 000-079-051 not shown (See page 10)

**Note:** If not equipped with APO leave at least 10" between the recovery tank and the shelf or tank on the drivers side of the van over the wheel well for future installation.

**Note:** Maintain a 12" gap around the machine when installing accessories such as shelving and hose reels. This is required to allow for the proper amount of air flow.

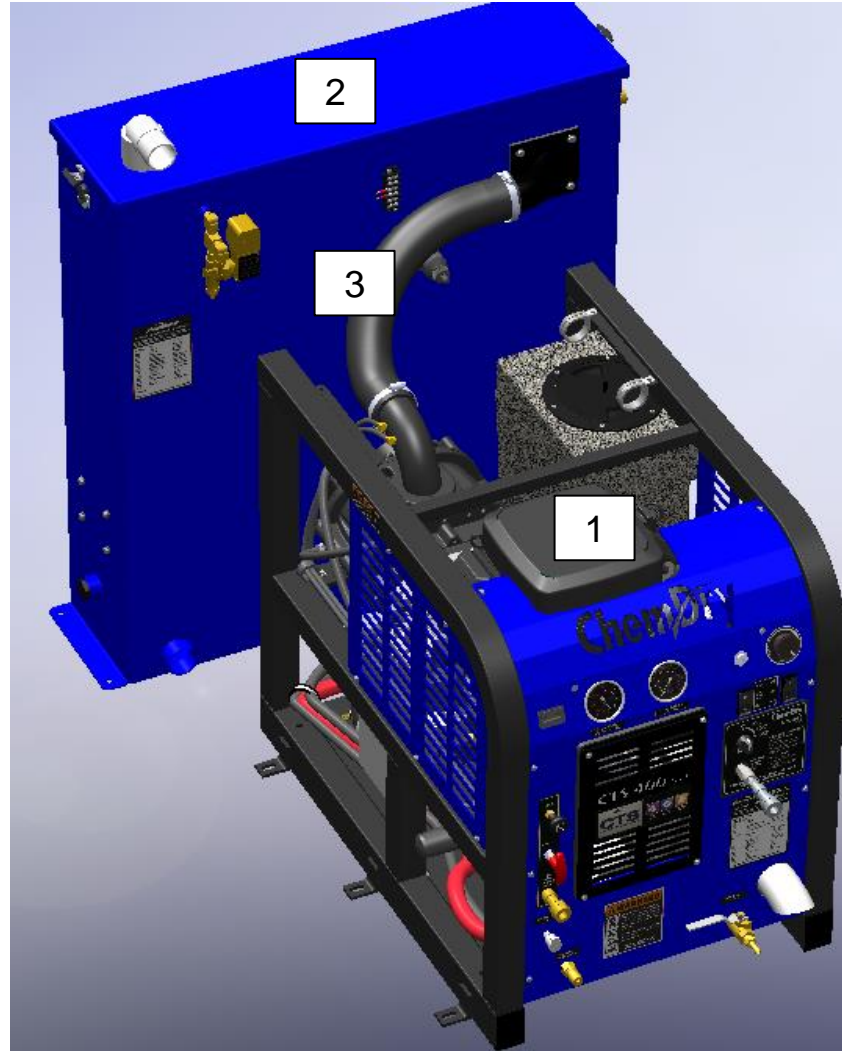
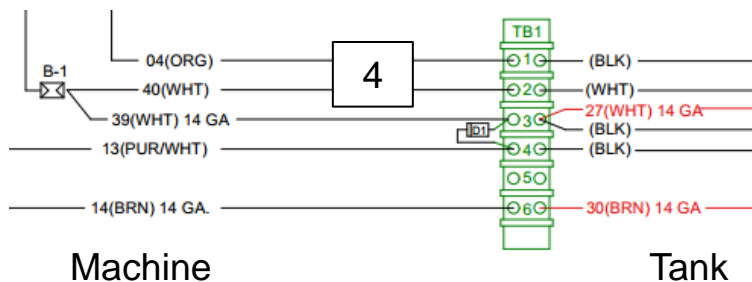
3



# Recommended Layout

1. CTS 400 Flex
2. 65 Gallon Recovery Tank
3. 2.5" Blower to Rec Hose & 3/16" Hose from orifice assembly
4. Install and secure machine per Standard HM guidelines. This unit will position and be secured similar to a Boxxer 318. Connections to the Recovery tank will need to be connected.

## Console to Tank Wiring:

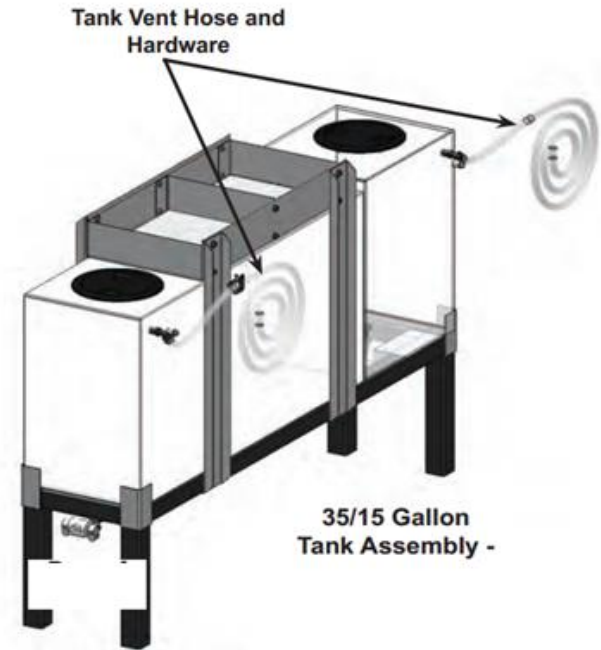


# Prepping the Flex Tank

1. Install the vent hoses supplied with the flex solution tank. It is recommended that the hoses be closest to the vehicle wall. In most cases this is the only choice.
2. The clear braided vent hose coiled up on the tanks will need to be routed above the tank against the wall of the van.

## CAUTION

Make sure you route each tank vent hose up through a cushion clamp, installed on the upper van wall. The open end of the each tank vent hose **MUST** be located above the tanks. If the tank vent hose is not routed in this manner, solution may pool in the van.



# Installing the Flex Tank

1. The flex tank assembly will typically be positioned on the drivers side, over the wheel well, next the to vehicle wall.
2. Load the tank assemblies into the rear of the van and dry fit.
3. Mark the location of the frame holes (4 per frame). Using a 3/8" bit, drill the holes.
4. If the hole is located over a "trough" in the vehicle flooring insert up to 3 cleat washers between the frame and the floor. These will act as shims to level the frame legs as necessary. You may not need all three cleats.
5. Secure the frame to the floor with the hardware provided in the installation kit.



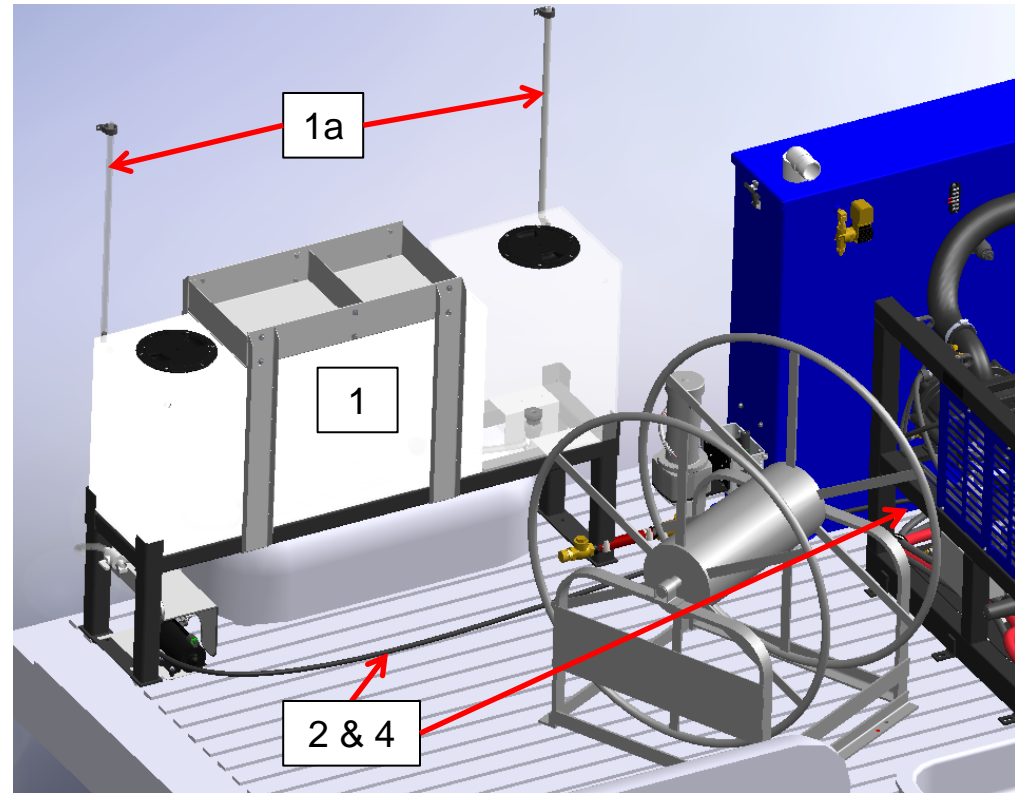
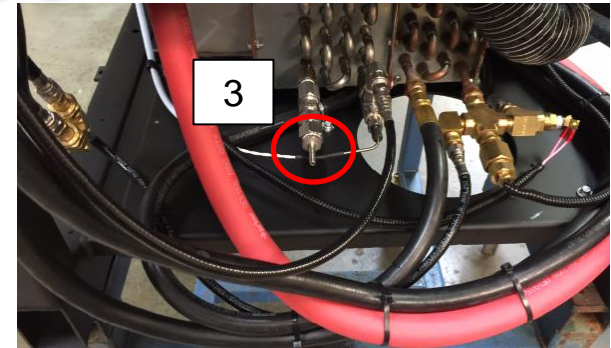
Insert Up to 3 Cleat Washers between Bracket and Interior Van Floor.

# Flex Hose and Vent Hoses

1. Install and secure the CTS 400 flex tank per Standard HM guidelines. This unit will be positioned and secured similar to the over-the-wheel well Fresh Water Tank.

a) **Note: The vent hoses should be installed closest to the wall. They should be positioned above the tank(s) to allow for proper ventilation.**

2. Route  $\frac{1}{4}$  rubber hose from the flex pump to the inlet of the stainless steel heat exchanger. This will be between the tank and the machine.
3. Slide on hose to barb and secure with hose clamp.
4. Route the wire harness with the hose in step 2.
  - a. Plug the weather pack plug into the pump, attach the other side to the black wire and the white wire on the machine.



7

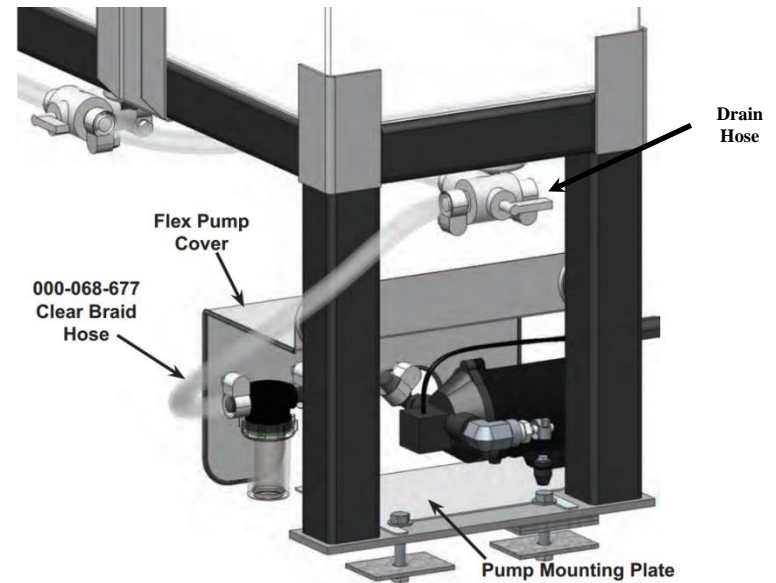
# Flex Pump Routing & Valve Operation

## Flex Pump Routing

1. A clear braid hose is preinstalled onto the 3-way ball valve at the factory. Connect this hose to the pumps strainer
2. The other hose connected to the 3-way ball valve is the drain for the selected tank.

## Valve Operation

1. There is one lever located on the 3-way ball valve on the 50 gallon tank assembly. There are two 3-way ball valves on the 35/15 gallon tank assembly. The valve flow will be through the side in which the lever is pointing.
2. The 3-way ball valve on the long side of the assembly (35/15 only) controls the tank it will draw from. To switch from tank to tank point the lever at which tank you would like to draw from
3. The valve on the short side of the assembly (All Tanks) controls flow to the pump or to the tank drain. The lever should be pointed at the pump for normal usage and towards the drain to empty the tank.





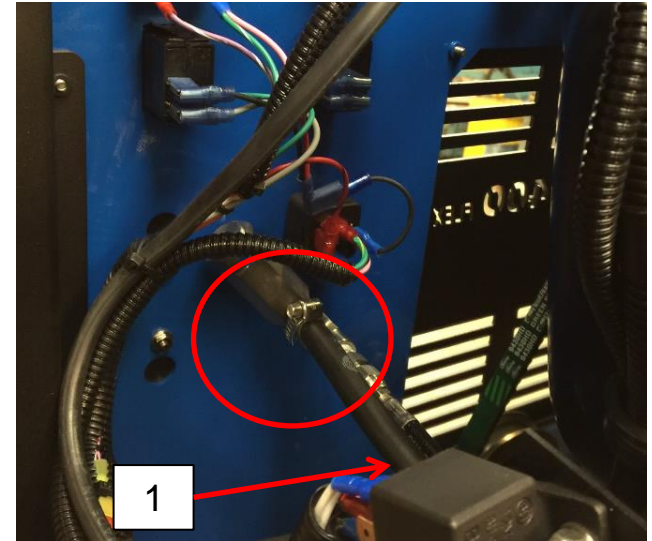
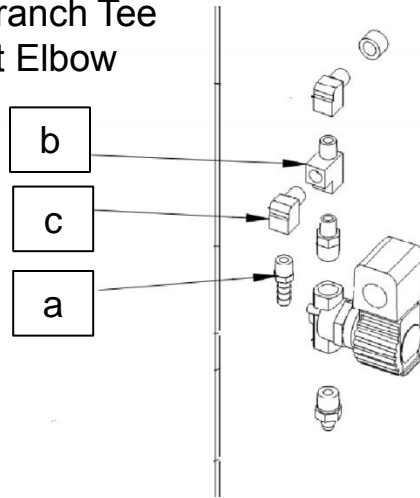
# Pop Off Valve Hose Routing

1. Route the ¼" rubber drain hose that comes from the stainless steel pop off valve located directly behind the panel on the right hand side of the machine to the ¼" barb on the recovery tank.

**Note:** The hose exits out the back of the machine with the other hoses and wiring.

**Note:** In the event the ¼" hose barb is not installed onto the recovery tank please contact HydraMaster tech support to order the following parts:

- a) 000-052-100 #44 Barb
- b) 000-052-090 ¼" Branch Tee
- c) 000-052-085 ¼" St Elbow



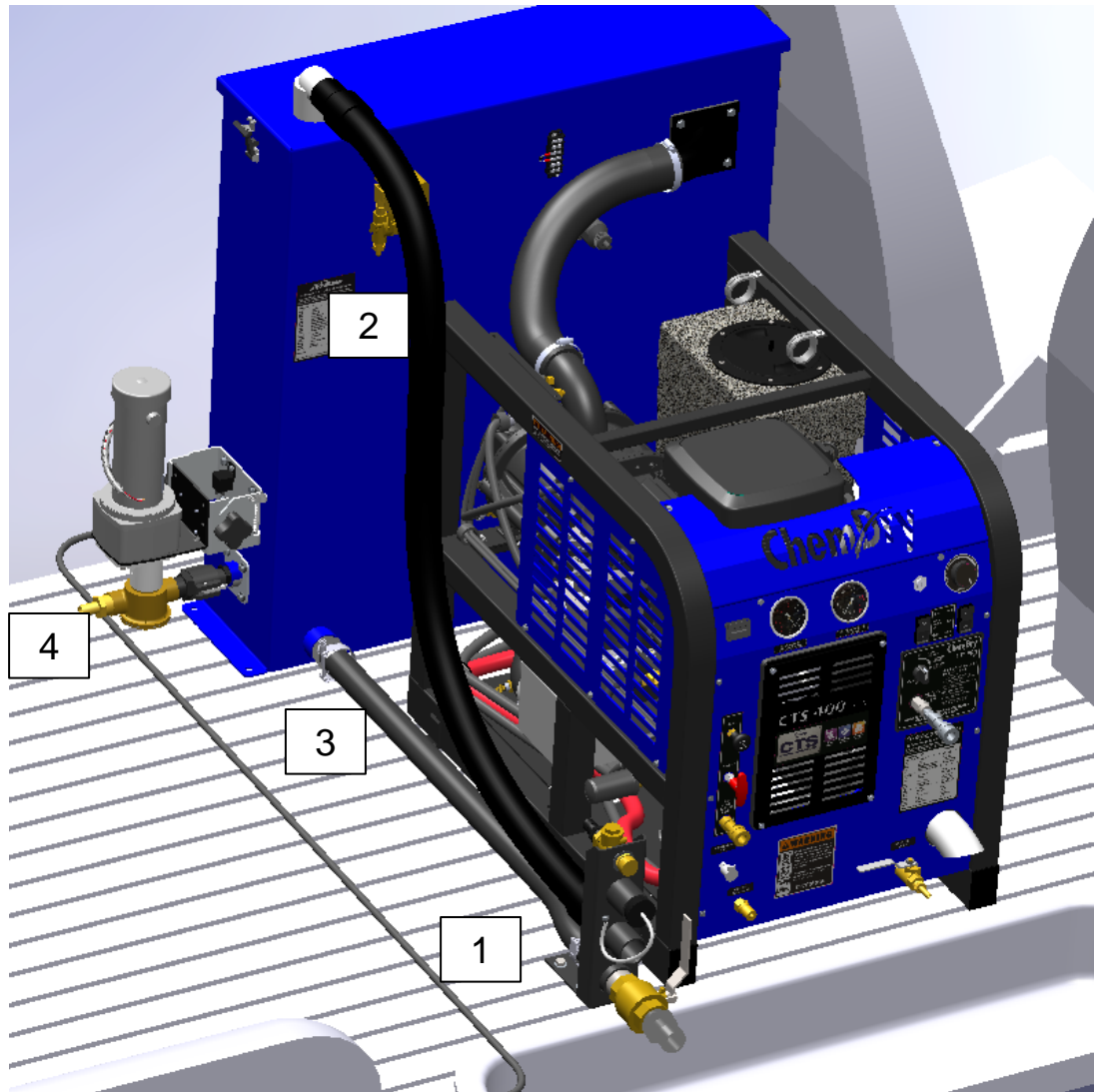
Recovery Tank  
Solenoid Assembly

# Recommended Layout (Optional Equipment)

1. Install the optional remote hose panel kit (000-079-051) to the left hand side of the machine.
2. Route vacuum hose from the remote hose panel to the recovery tank.
3. Route the dump hose from the remote hose panel to the recovery tank.
4. If equipped with optional APO from the factory (000-079-091), route the APO hose from the remote hose panel to the APO outlet.

**Note:** It may be necessary to transfer the APO check valve to the remote hose panel.

**Note:** If the CTS 400 Flex did not come with the APO factory installed and the customer would like to order the APO kit, use part number 000-079-094 for field installations.



# Adjusting the Flex Pump

This must be done by the installer prior to running the machine

## PUMP TUNING INSTRUCTIONS

Pump tuning for the CTS 400 Flex allows the pump pressure switch to turn off when there is no flow out of the tool. This reduces the pump operating temperatures and increases the pump durability.

### NOTICE

Pump tuning should be performed every 60 days.

The pump pressure setting adjustment is performed by turning the hex screw, which is close to the center of the pump head, with a hex L-key, provided in the Flex Installation Kit - (see Figure 4-3).

- Clockwise increases the pressure
- Counterclockwise decreases the pressure.

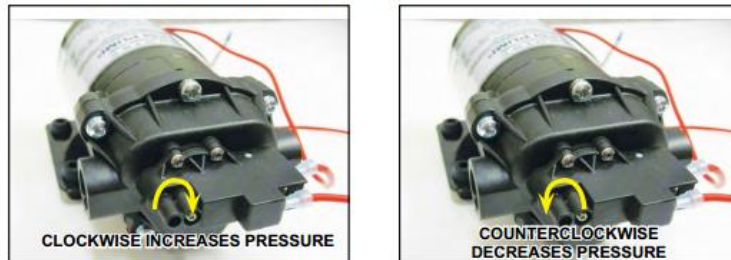


Figure 4-3. Location of Pump's Hex Screw

Tools required include:

- 1/16" hex L-key (one is provided with each pump for your convenience in Installation Kit, P/N 000-078-934).
- Solution hose
- Cleaning tool (upholstery tool/ wand/ rotary cleaning tool) to allow solution to flow out
- Container to collect solution flowing out of the tool.

## Start-up Pump Tuning Procedure

1. Connect the tool's solution hose to the quick disconnect.
2. Turn the ignition switch to the "ON" position.

### NOTICE

You do not need to start the unit since vacuum is not needed for this procedure.

3. Select "CARPET/UPH." on the Solution Control switch.
4. With the pump still on, disconnect the solution hose from the Flex unit.

The pump should run for about 3 to 5 seconds and then switch off.

5. Leave the hose disconnected.

Continue on to the Adjustment procedure (page 4-16).

## Adjustment

1. If the pump continues to run for longer than 3 to 5 seconds, turn the screw counterclockwise until the pump switches off (see Figure 4-4).
2. If the pump switches off as soon as the hose is disconnected (less than 3 to 5 seconds), turn the pump screw clockwise one complete turn.
3. With the pump still on, reconnect the solution hose onto the Flex unit (see Figure 4-3).

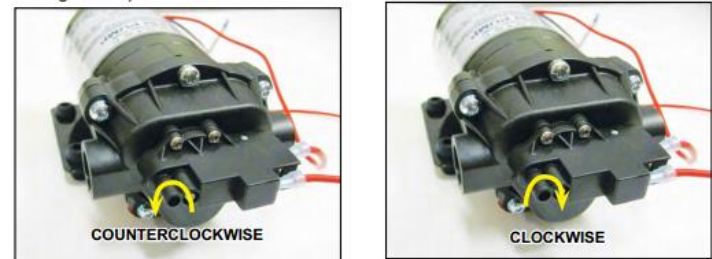


Figure 4-4. Insert Hex L-Key and Turn It Counterclockwise/Clockwise

The pump should switch on.

4. Repeat steps 1 through 3 on this page until the pump switches off within 3 to 5 seconds after the hose is disconnected.

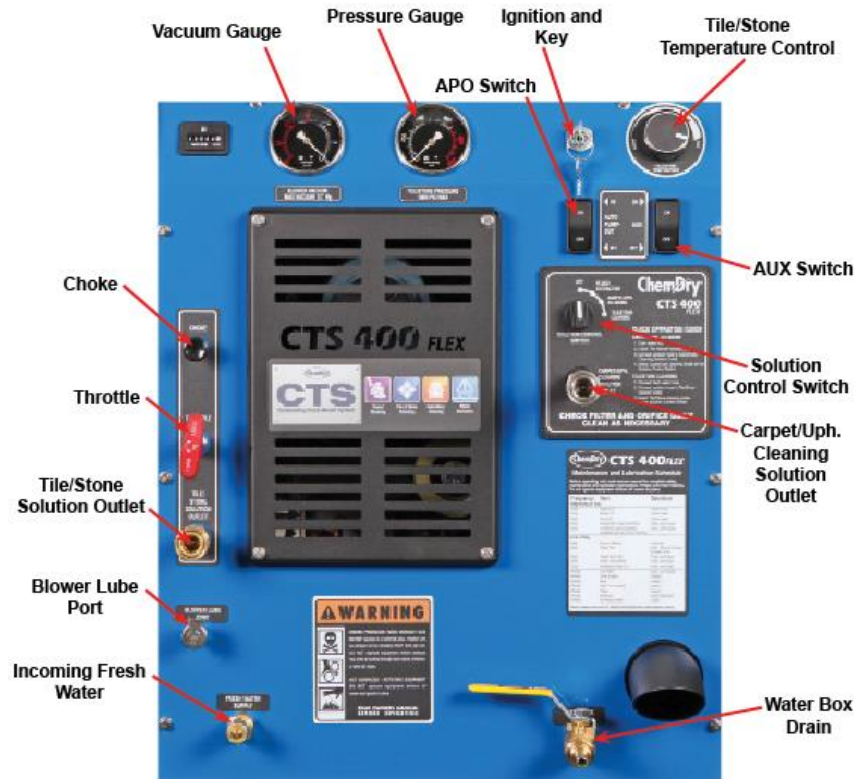
# Test and Operation

## NOTICE

Test machine to verify all systems operate properly. The following are excerpts from the owners manual.

### START-UP PROCEDURE (ALL MODES)

1. Perform all daily and periodic maintenance as specified in Section 4 of this Owner's Manual.
2. Ensure the Solution Control switch is in the "OFF" position.
3. Connect all cleaning tools to the length of hose required to perform the cleaning job.
4. Turn the key to the "ON" position. Pull the choke and start the truckmount with the throttle cable fully depressed ("IDLE" position – see Figure 2-1).
5. After the engine starts, push the choke in and allow the truckmount to run in "IDLE" for 2 to 3 minutes to warm up.
6. Pull the throttle cable to full extension and twist the handle clockwise to lock.



# Flex Mode “Carpet/Upholstery”

## CARPET/UPHOLSTERY PROCEDURE

1. Ensure the Flex tank(s) is full.
2. Connect all solution and vacuum hoses, and the APO hose (if equipped).
3. Drain the water box by opening the water box drain valve on the dash.
4. Select “CARPET/UPH.” on the Solution Control switch (see Figure 2-2).

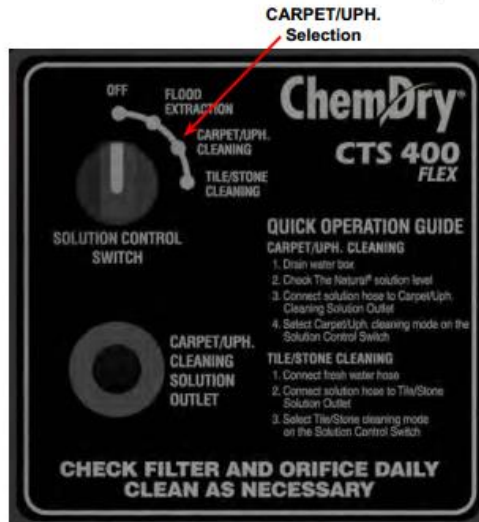


Figure 2-2. Select “CARPET/UPH.” on Solution Control Switch

5. Optional: Press the Auto Pump Out (APO) switch to the “ON” position.

## NOTICE

The PUMP OUT system will not engage until the water level rises inside the recovery tank.

6. Now proceed with the cleaning operation.

## CAUTION

Never perform cleaning operations when the truckmount engine is running at IDLE throttle position. Failure to follow this caution will increase the risk of serious component or engine damage.

## NOTICE

The machine will automatically shut down when it reaches its full capacity due to the float switch located inside the recovery tank. When this occurs, turn the Solution Control switch to “OFF” and empty the recovery tank. Then, turn the unit back on and continue to clean.

## SHUT-DOWN PROCEDURE

1. Turn the Solution Control switch to “OFF”.
2. Remove solution and vacuum hose.
3. Lubricate the blower to prevent it from rusting internally.
  - a. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove moisture from the blower.
  - b. Cap off the inlet to the vacuum tank.
  - c. Spray a HydraMaster-recommended spray lubricant into the blower lube port for about 5 to 7 seconds while the unit is running (See Figure 2-1).
  - d. Allow the machine to run an additional 2 to 5 minutes under load to flush off lubricant.
  - e. Uncap the inlet and run the unit for another minute to allow the blower to cool down.
4. If freeze guarding is necessary perform the procedure at this time. See Section 3 , Freeze Guarding, in this Owner’s Manual.
5. Return the engine throttle to the “IDLE” position.
6. Turn the key to “OFF”
7. Drain the water box using the valve.
8. Drain the vacuum tank in an appropriate location.

## NOTICE

In accordance with the EPA, state and local laws, do not dispose of water into gutters, storm drains, streams, reservoirs, etc.

9. Perform daily maintenance as specified in Section 4 of this Owner’s Manual.

# “Tile and Stone Mode”

## TILE/STONE CLEANING PROCEDURE

1. Follow the start-up procedure.
2. Connect a garden hose to the truckmount. If a pump in pump is used, turn the AUX switch to the “ON” position (see Figure 2-1).

### NOTICE

The water box must be full prior to starting the truckmount.

3. Connect all solution and vacuum hoses, and the APO hose (if equipped).
4. Select “TILE/STONE CLEANING” on the Solution Control switch (see Figure 2-3).

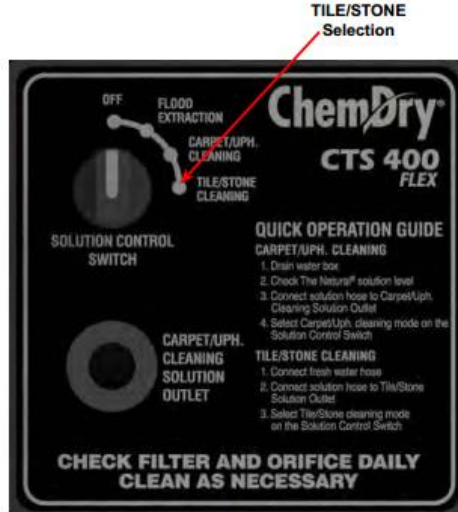


Figure 2-3. Select “TILE/STONE” on Solution Control Switch

5. Set the temperature to the desired level on the “TILE/STONE TEMPERATURE” control knob.
6. Adjust the “PRESSURE REGULATOR” located on the left hand side of the machine (see Figure 2-4), to the desired cleaning pressure level.



Figure 2-4. Side View of CTS 400 Flex Console

7. Optional: Press the Auto Pump Out (APO) switch to the “ON” position.

### NOTICE

The PUMP OUT system will not engage until the water level rises inside the recovery tank.

8. Now proceed with cleaning operation.

### CAUTION

Never perform cleaning operations when the truckmount engine is running at IDLE throttle position. Failure to follow this caution will increase the risk of serious component or engine damage.

### NOTICE

The machine will automatically shut down when it reaches its full capacity due to the float switch located inside the recovery tank. When this occurs, turn the Solution Control switch to “OFF” and empty the recovery tank. Then, turn the unit back on and continue to clean.