



**ADH<sup>®</sup> NETCOM<sup>™</sup> AUTOMATIC AIR  
DEHYDRATOR OUTLET SOLENOID MODULE  
REPLACEMENT PROCEDURE**

**Replacement Kit Part Number 24090  
Document Part Number 24103**

## SAFETY INFORMATION AND WARNINGS

### Abnormal Odor or Smoke



In the event of smoke or a burning or abnormal odor, immediately interrupt power to the ADH NETCOM with the POWER switch at the rear of the unit, unplug the unit, or turn off the circuit breaker controlling the outlet. Note that only the AC model of the ADH NETCOM has an ON / OFF switch.

### Lethal Voltages Present



Lethal voltages are present inside the ADH NETCOM. Service should be performed by qualified personnel only. There are no user serviceable components inside the chassis.

### Pneumatics



Each of the air pumps inside the ADH NETCOM automatic air dehydrator is capable of generating as much as 24 psig (1,655mbar). Other attached dry air sources may be capable of generating even higher pressures. Proper safety practice requires treating all pneumatic components with care. Always vent the system to atmospheric pressure before servicing pneumatic components.

### Rack Mounting



Before and after rack mounting the ADH NETCOM, ensure that the rack is stable. Mounting of the ADH NETCOM into a rack should be such that a hazardous condition is not created due to uneven mechanical loading. Verify that adequate air flow and power source capacity is available to the unit. Ensure that the ADH NETCOM maximum operating temperature of 130°F (55°C) will not be compromised by other components in the rack. Ensure reliable earthing of the ADH NETCOM.

# ADH NETCOM OUTLET SOLENOID MODULE

## REPLACEMENT PROCEDURE

This procedure addresses the removal and replacement of an Outlet Solenoid Module in an ADH NETCOM Automatic Air Dehydrator. The first section addresses the replacement of an Outlet Solenoid Module in AC and DC units. So The second section, starting on page 9, addresses the replacement of an Outlet Solenoid Module in an ADH NETCOM AC NEMA unit. It is recommended to read the entire procedure prior to beginning work. INVENTORY LIST Identify the following items in this kit prior to beginning work.

## TOOLS REQUIRED

The following tools are needed to perform this procedure:

- Straight slot screwdriver
- Adjustable wrench
- Pipe sealing tape or RTV
- Ruler
- Long screwdriver
- Loctite® 252 (Removable)
- Tubing wrench or vacuum tube pliers
- 5/16" Nut driver
- Hose cutting device

### NOTE:

There are two Outlet Solenoid Modules in every unit, regardless of configuration. Even if only one of them is actually faulty, however, both will need to be removed from the machine for a field modification being made to the solenoid lower fittings for greater reliability and improved performance.

Item Number	Part Number	Item Quantity	Item Description
1	23214	1	Outlet Solenoid Module
2	24510	1	Tubing Assembly
3	14513	1	Right-Angle Fitting
4	24103	1	Instruction Manual (this document)

## OUTLET SOLENOID REPLACEMENT IN AN ADH NETCOM AC OR DC UNIT

To replace an Outlet Solenoid Module (23214) in either an ADH NETCOM Automatic Air Dehydrator with AC power or an ADH NETCOM with Redundant DC power, perform the steps below. To replace an Outlet Solenoid Module in an ADH NETCOM AC NEMA unit, proceed to page 9.

### AC AND DC UNIT TUBING ASSEMBLY MODIFICATION PROCEDURE

The tubing assembly in the replacement kit is used in ADH NETCOM AC and DC units, as well as in AC NEMA units, but the dimensions are not the same. For that reason, it is necessary to modify the tubing assembly, but only if installing it into AC or DC units as described below. Refer to Figure 1 for “before and after” views of the tubing assembly, prior to and following modification. It is useful to confirm all measurements before cutting. Do not perform this procedure when installing into an AC NEMA unit. Use the tubing assembly “as is” for installation into ADH NETCOM AC NEMA units.

Rather than having to stop mid-way through the procedure to cut the tubing assembly to the proper size, begin the process by modifying the tubing assembly first so it will be ready when needed later in this procedure.

1. The tubing assembly has three sections of tubing attached to the Y connector: two sections of 2.5 inches each and one section of 12.5 inches. Begin by removing both 2.5-inch tubing sections from the Y connector. These two sections may be discarded.
2. Now, cut 8.5 inches off the remaining 12.5-inch section, leaving 4 inches of that section still attached to the Y connector.
3. From the 8.5-inch section that was cut off in step 2, cut one piece of 4.5” and another piece of 1.75”.
4. Install each of these two sections, one of 4.5” and the other of 1.75”, into the Y connector fittings from which the two original 2.5” sections were removed in step 1.
5. With the sections properly cut, this will leave one section of 4”, one of 1.75” and the third of 4.5”. Before proceeding, make sure the three sections of tubing are firmly attached to the Y connector.

**NOTE:**

The field modification converting Tubing Assembly P/N 24510 for use in ADH NETCOM AC and DC units will result in creating Tubing Assembly P/N 24505. Modify as shown in Figure 1 below **ONLY** if installing in ADH NETCOM AC or DC units. Use AS IS if installing in ADH NETCOM AC NEMA units.

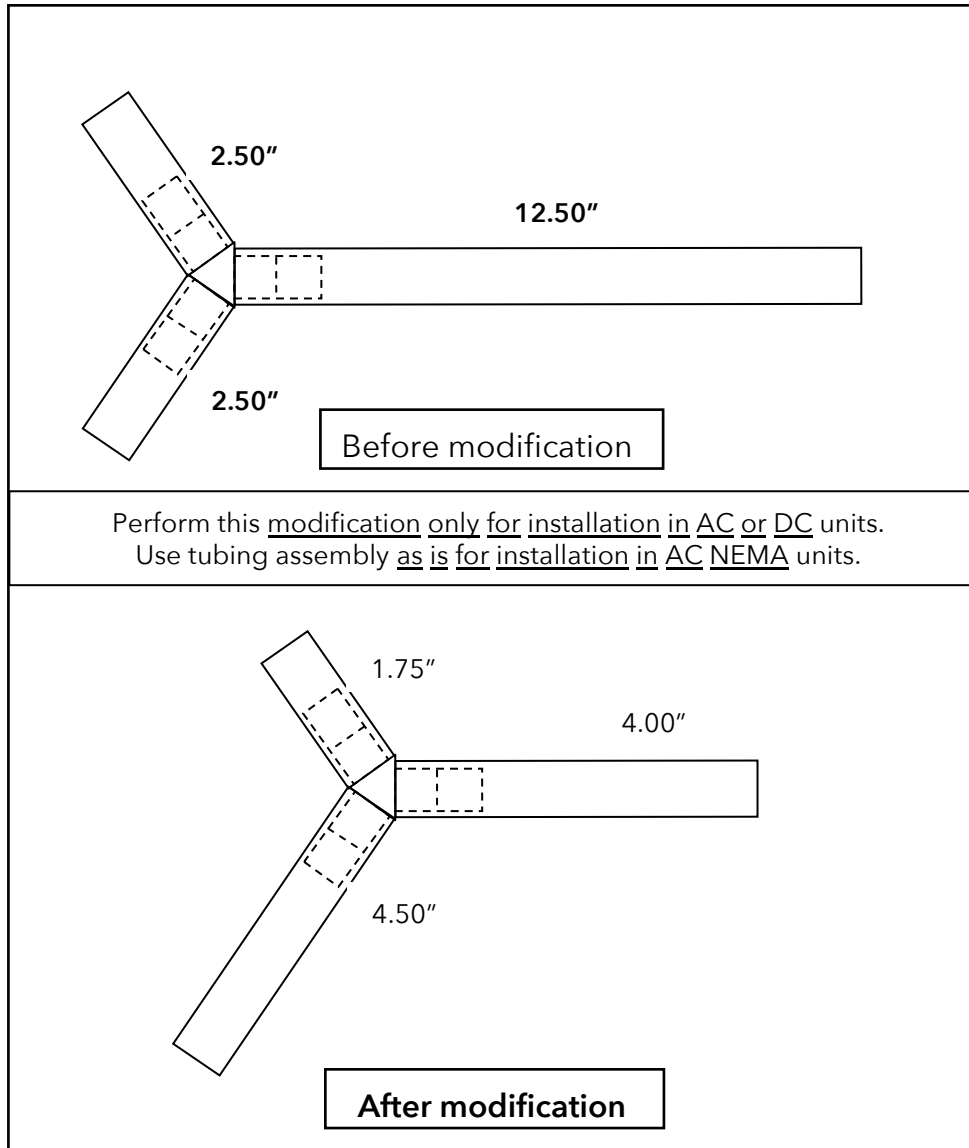
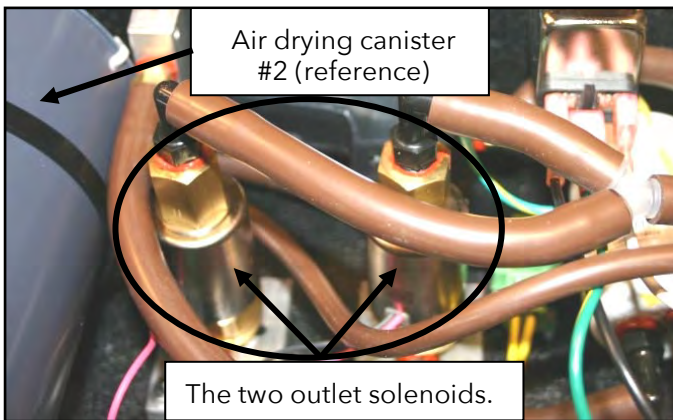


Figure 1. TUBING ASSEMBLY MODIFICATION.

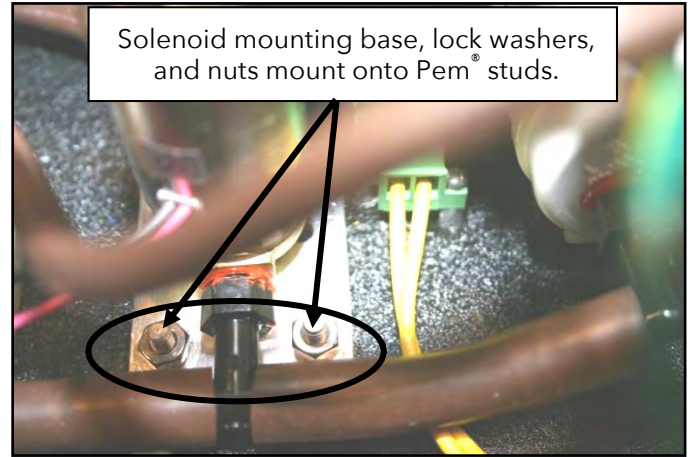
Part Number 24510 is for use in AC NEMA units without field modification.  
Part Number 24505 is for use in AC and DC units and will result from field modification

1. Shut off AC machine power by placing the power switch in the OFF (O) position, then unplugging the power cord. Shut off DC machine power by shutting off the external power supply. If possible, move the dehydrator to a work table.
2. Remove both top machine panels. Retain mounting hardware.
3. Using a tubing wrench or vacuum tubing pliers, carefully disconnect the air hoses from the upper and lower fittings of both solenoids. Refer to Figure 2. Be careful to not displace, jar, or move the fittings as doing so will cause leaking inside the enclosure.



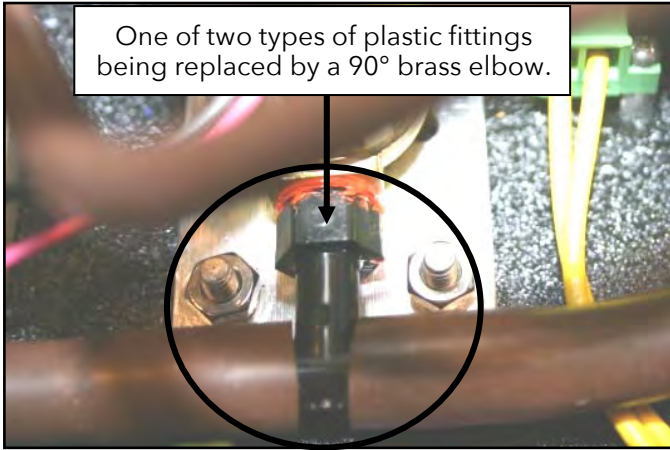
**Figure 2. THE ADH NETCOM AUTOMATIC AIR DEHYDRATOR OUTLET SOLENOID MODULES.**

4. Using the 5/16" nut driver, remove the two nuts and lock washers securing each solenoid mounting base to the chassis, then remove both outlet solenoid modules and their mounting bases with their upper and lower fittings (but not the air hoses) still connected. Retain the mounting hardware. Refer to Figure 3.



**Figure 3. SOLENOID MOUNTING HARDWARE.**

5. From the good solenoid (removed only to change the existing lower plastic fitting), remove the lower plastic fitting at this time. Refer to Figure 4. To facilitate fitting removal and replacement, remove the mounting base from the solenoid. Retain the mounting base and all mounting hardware. With the mounting base removed from the good solenoid, using pipe sealing tape or RTV around the threads, install the new brass elbow fitting from the replacement kit onto the solenoid in the lower position from which the original fitting was removed. The opening in the new brass fitting must point upward, parallel with the body of the solenoid. Fully tighten the new fitting. Once the new fitting is installed and properly positioned, reinstall the mounting base onto the solenoid and torque to 8 in/lb.

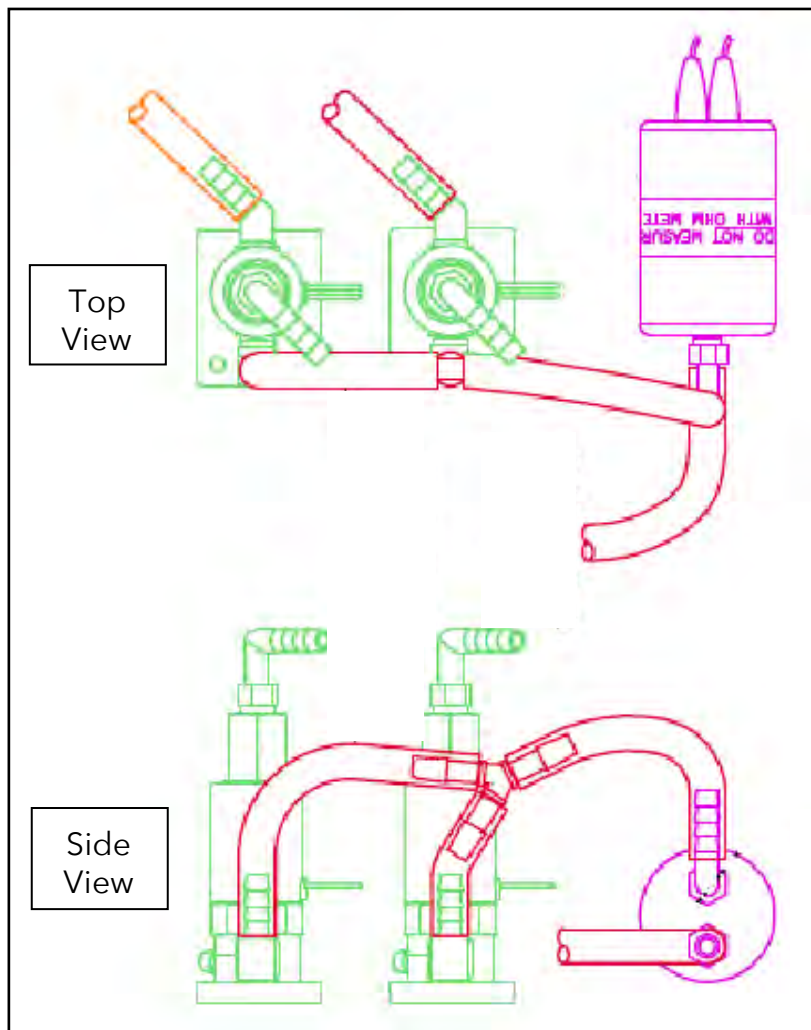


**Figure 4. ONE OF TWO TYPES OF EXISTING SOLENOID FITTINGS.**

6. Prior to installing either solenoid, the humidity sensor must first be rotated to facilitate the new "Y" tubing assembly from the replacement kit. To rotate the humidity sensor, first cut the two wire ties securing the humidity sensor in place. Now, carefully rotate the humidity sensor 90 degrees to the right or clockwise (CW) so that the humidity sensor fitting or inlet port faces up (for shelf-mounted units) or toward the front of the machine (for wall-mounted units). Be careful not to move the humidity sensor fitting with regard to the body of the humidity sensor. Just rotate the body of the humidity sensor 90 degrees to the right without moving the fitting. By so doing, the sensor fitting will end up at the desired proper angle and position. Once the humidity sensor has been rotated as directed, secure it in place using the two wire ties from the replacement kit. Install both ties around the body of the humidity sensor as on the original installation.
7. With the new brass fitting installed onto the good solenoid in the lower position, that assembly and the new solenoid assembly from the replacement kit should look alike, with a 90° brass elbow fitting installed on each and a mounting bracket connected to each. The upper fittings have not changed. Install each solenoid with its mounting bracket onto the Pem® studs on the floor of the chassis using the mounting hardware removed in step 4 and torque to 10 in/lb. It does not matter which solenoid is installed in which location. Make sure that the lower solenoid fittings face the front. As shown in the Side View of Figure 5, the two top fittings should both be angled toward the humidity sensor and parallel with each other. This will make it easier to install the new tubing assembly onto the brass fittings, in addition to reducing the strain on the air hoses once they're installed.
8. Carefully connect the new "Y" tubing assembly from the replacement kit to the new lower fittings on each solenoid and the humidity sensor. Connect the two sides of the "Y" to the two lower solenoid fittings and the single end of the tubing assembly to the humidity sensor. As before, be careful to not jar the upper fittings as doing so might cause leaking inside the enclosure. To confirm proper tubing assembly installation and routing, refer to the schematic diagram in Figure 5 showing the new tubing assembly installation.



9. Once the tubing assembly from the replacement kit has been connected between the new lower fitting on each solenoid and the humidity sensor, reconnect the original upper hose assembly, removed in step 3, as it had been originally. Again, be careful to not jar the upper fittings as doing so might cause leaking inside the enclosure.
10. Reinstall the top panels using the mounting hardware removed in step 2.
11. Restore machine power.



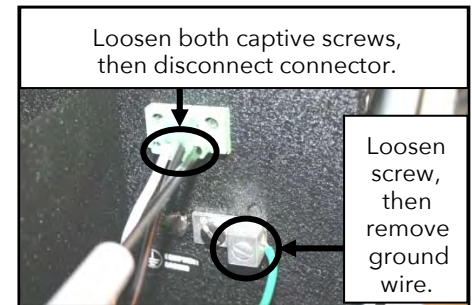
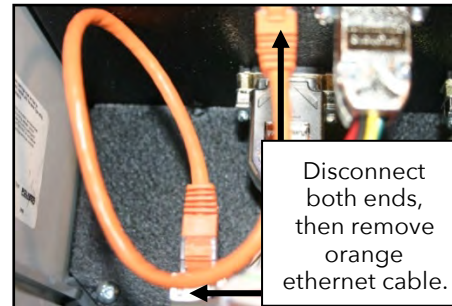
**Figure 5. ADH NETCOM AC / DC AUTOMATIC AIR DEHYDRATOR INSTALLATION SCHEMATIC DIAGRAM.**



## OUTLET SOLENOID REPLACEMENT IN AN ADH NETCOM AC NEMA UNIT

To replace the Outlet Solenoid Module (23214) in an ADH NETCOM Automatic Air Dehydrator AC NEMA, perform the steps below. Do not perform the tubing modification procedure found earlier in this manual. That procedure is used only on AC and DC installations. Use the tubing assembly as is on AC NEMA units.

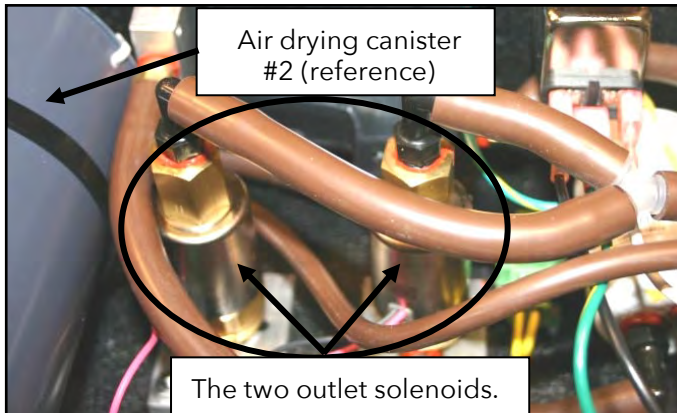
1. Shut off machine power by unplugging the unit.
2. Open the two front door latches, loosen the two captive screws in the corners of the housing opposite the hinges, then open the NEMA box. Place an object underneath the door once open to help support it during this procedure.
3. Remove the orange ethernet cable on the left by disconnecting both ends, then removing it. Set aside for re-use. Remove the power cable connector on the right by loosening the captive screw on each end of the green connector, then unplugging the connector. Disconnect the ground wire by loosening the ground wire retaining screw, then carefully removing the ground wire. Refer to Figure 1.



**Figure 1. DISCONNECTING THE ETHERNET CABLE, THE POWER CABLE CONNECTOR, AND THE GROUND WIRE.**

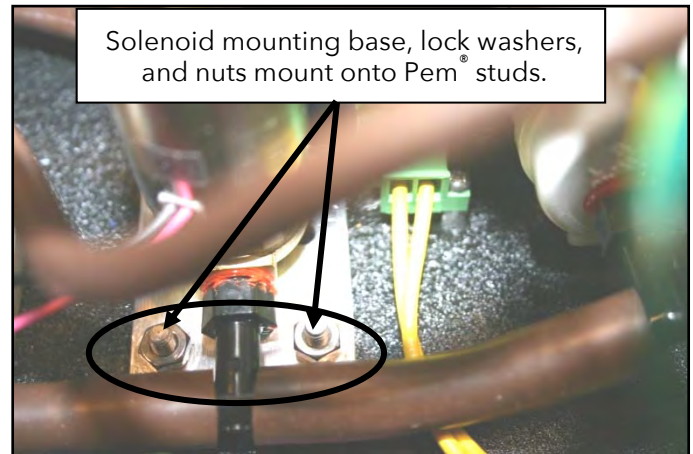
4. Remove and retain the four mounting screws from the four corners of the protective front cover, then slowly lift the front cover, carefully flip it over, then set it down, upside down, to rest on the inside of the enclosure door. Be careful as there are still many wires connected between the enclosure and the front cover and there isn't a lot of slack. Note that the two upper front cover mounting screws are located in plain sight in the top corners of the front cover, while the two lower front cover corner mounting screws are located down in the front "well" of the unit. Use a long-handled screwdriver to remove them.

- Using a tubing wrench or vacuum tubing pliers, carefully disconnect the air hoses from the upper and lower fittings of each solenoid. Refer to Figure 2. Be careful to not jar or move the fittings as doing so will cause leaking inside the enclosure.



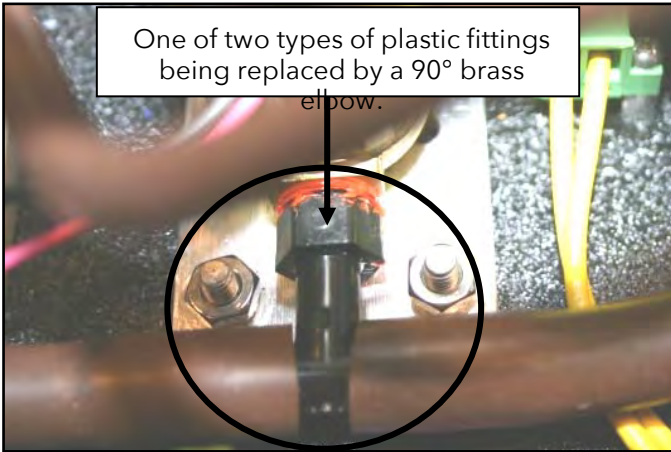
**Figure 2. THE ADH NETCOM AUTOMATIC AIR DEHYDRATOR OUTLET SOLENOID MODULES.**

- Using the 5/16" nut driver, remove the two nuts and lock washers securing each solenoid mounting base to the chassis, then remove both solenoids with their mounting bases and upper and lower fittings (but not the air hoses) still connected. Retain mounting hardware. Refer to Figure 3.



**Figure 3. SOLENOID MOUNTING HARDWARE.**

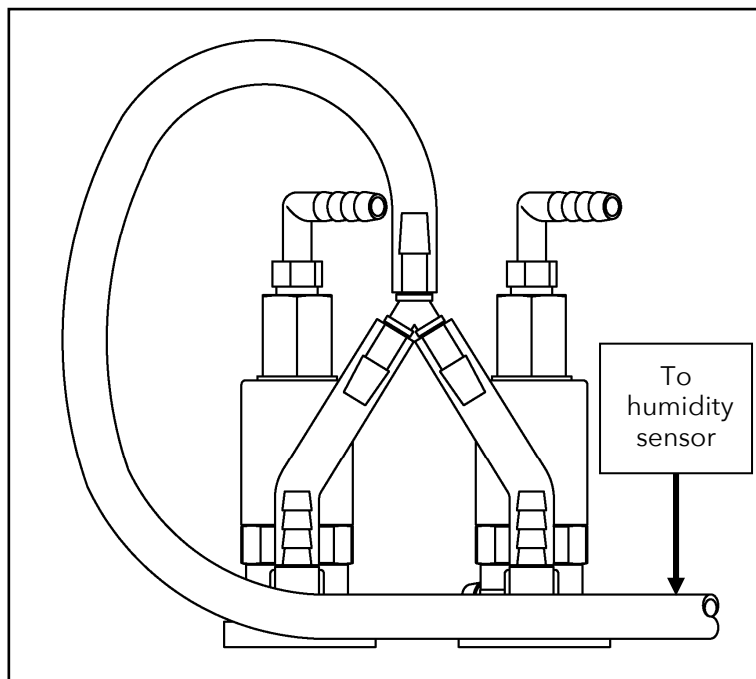
- From the good solenoid (the one removed only to change the existing lower plastic fitting), remove the lower plastic fitting at this time. Refer to Figure 4. To facilitate fitting removal and replacement, remove the mounting base from that solenoid, as well. Retain the mounting base and all hardware. With the mounting base removed from the good solenoid, using pipe sealing tape or RTV around the threads, install the new brass elbow fitting from the replacement kit onto the good solenoid in the lower position where the original plastic fitting had been. Make certain that the opening in the new brass fitting points upward, parallel with the body of the solenoid. Fully tighten the new fitting. Once the new fitting is installed and properly positioned, reinstall the mounting base onto that solenoid and torque to 8 in/lb.



**Figure 4. ONE OF TWO TYPES OF EXISTING SOLENOID FITTINGS.**

8. Prior to installing either solenoid, the humidity sensor must first be rotated to facilitate the new "Y" tubing assembly from the replacement kit. To rotate the humidity sensor, first cut the two wire ties securing the humidity sensor in place. Now, carefully rotate the humidity sensor 90 degrees to the right or clockwise (CW) so that the humidity sensor fitting or inlet port faces upward or toward the front of the machine. Be careful not to move the humidity sensor fitting with regard to the body of the humidity sensor. Just rotate the body of the humidity sensor 90 degrees to the right without moving the fitting. By so doing, the sensor fitting will end up at the desired proper angle and position. Once the humidity sensor has been rotated as directed, secure it in place using the two wire ties from the replacement kit. Install both ties around the body of the humidity sensor as on the original installation.
9. With the new brass fitting installed onto the good solenoid in the lower position, that assembly and the new solenoid assembly from the replacement kit should look alike, with a 90° brass elbow fitting installed on each and a mounting bracket connected to each. The upper fittings have not changed. Install each solenoid with its mounting bracket onto the Pem® studs using the mounting hardware removed in step 6 of this section and torque to 10 in/lb. It does not matter which solenoid is installed in which location. Make sure that the lower solenoid fittings face the front. As shown in Figure 5, the two top fittings should both be angled toward the humidity sensor and parallel with each other. This will make it easier to install the new tubing assembly onto the brass fittings, in addition to reducing the strain on the air hoses once they're installed.
10. Carefully connect the new "Y" tubing assembly from the replacement kit to the new lower fittings on each solenoid and the humidity sensor. Connect the two sides of the "Y" to the two lower solenoid fittings and the single end of the assembly to the humidity sensor fitting. As before, be careful to not move or jar the upper fittings as doing so might cause leaking inside the enclosure. Refer to the schematic diagram presented in Figure 5 showing the new tubing assembly installation.

11. Once the new lower tubing assembly from the replacement kit has been connected between the lower fitting on each solenoid and the humidity sensor, reconnect the upper hose assembly, removed in step 5 of this section, connected as it was originally. Be careful to not dislocate the upper fittings as doing so might cause leaking inside the enclosure.
12. Reinstall the front cover removed in step 4 of this section. If it was placed upside down on the lid of the unit during this procedure, carefully turn the cover back over and work it back into position, past the wires and other components in the enclosure. Reinstall the four corner screws securing the front cover to the chassis.
13. Reconnect the ground wire by inserting it behind the retaining screw from which it was removed, then tighten the ground wire retaining screw. Reconnect the green power connector by holding it in place then tightening the two captive screws removed in step 3 of this section. Reconnect both ends of the orange ethernet cable removed in step 3 of this section. It does not matter which end of the ethernet cable goes into which receptacle.
14. With the ground wire, power connector and ethernet cable reconnected, close the lid of the NEMA enclosure and secure the two latches opposite the hinges. Secure the lid in place by reinstalling the two captive screws in the two outer corners of the lid.
15. Restore machine power by plugging the unit back in.



**Figure 5. ADH NETCOM AC NEMA AUTOMATIC AIR DEHYDRATOR OUTLET SOLENOID MODULE INSTALLATION SCHEMATIC DIAGRAM.**

## QUESTIONS AND COMMENTS

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