

MT-2400 for use with NH3



Installation Notes:

Install the console and speed sensor as described in the MT-2400 manual. Page 7 of this insert overviews the installation and connecting options of the main wiring harness. Follow the instructions on pages 2-5 for installing the NH3 plumbing panel on your toolbar.

Calibration Notes:

Follow the calibration procedure outlined in the MT-2400 manual. When calibrating the TARGET RATE, ADJUST RATE and MIN FLOW, values are entered in pounds (kg) of actual "N", not in units or gallons of NH3. For example, if you want to apply 150.0 pounds of actual "N" per acre, enter 150 for your TARGET RATE in calibration. If you want your adjust rate to function in increments of 10 pounds of actual "N" per acre, enter 10.0 for you ADJUST RATE in calibration. When calibrating the WIDTH, enter the entire working width, in inches (meters) under Boom 1. Make certain that Booms 2, 3 and 4 have their respective widths set to zero.

Operation Notes:

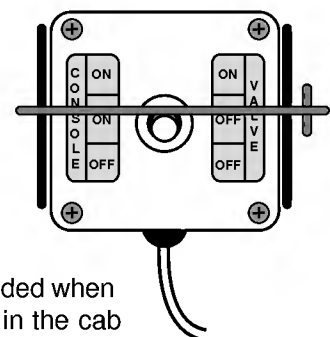
Console operation is basically the same as what is outlined in the MT-2400 manual. All liquid related display items (APP. RATE, FLOW RATE, and TOTAL FLOW) are displayed in pounds (kg) of actual "N". The flowmeter calibration from the tag on the flowmeter is setup to convert the gallons measured into pounds of actual "N". You don't need to do any conversions.

Switch Box Operation:

The switch box features a three-position switch. In the bottom position, power to both the console and the NH3 shut-off valve will be OFF. Placing the switch in the middle position will turn power to the console ON and keep power to the NH3 shut-off valve OFF, disabling the area counting function. Placing the switch in the top position will keep the console power ON and turn the NH3 shut-off valve ON, enabling the area counting function.

The pin supplied with the switch box serves two purposes. When installed through the holes just above the center position of the switch, it prevents the switch from moving to the top position and turning the NH3 shut-off valve ON. This pin installation is recommended when you are working on the system installed on the tool bar. It prevents someone working in the cab from accidentally turning the NH3 shut-off valve ON while you are working back on the tool bar.

When the pin is installed through the holes just below the center position of the switch, it prevents the switch from moving to the bottom position and turning power to the console OFF. While the MT-2400 has advanced memory that retains all values, even when power is turned OFF, the power-up sequence of the console may cause delays in operation of the system at power-up.



NH3500 Kit Installation

Remove any existing metering valves. If the old metering valve has a built-in manifold, it is recommended to install a separate new manifold for the NH3500 kit. Another option, although not recommended, is to use the existing manifold, making certain the old metering valve is in the maximum open position to allow for minimal restriction of flow through the plumbing. There also should not be any positive shut-off valves installed in the plumbing between the NH3500 kit shut-off valve and the knives.

Locate a convenient area on the applicator to install the NH3500 plumbing panel. When selecting an installation location, keep in mind that the hose from the break-away coupler must reach the strainer inlet with enough length to allow for proper operation of the disconnect mechanism of the break-away coupler and prevent kinking of the hose at hinge points. Also, the strainer's clean-out plug should be accessible for regular cleaning. Make certain that the area selected allows for enough length of the manifold hose, between the manifold and the servo valve outlet, to prevent kinking at hinge points.

INSTALLATION NOTE: It is recommended to use an NH3 compatible thread sealing compound such as "Slic-tite paste with Teflon", or a similar compound, on all pipe thread fittings. Slic-tite is manufactured by LA-CO Industries, Inc./Markal Company.

Remove the NH3500 plumbing panel from the shipping board. Install the plumbing panel on the tool bar frame using the carriage bolts and flange lock nuts through the top and bottom brackets of the system. Trim any excess length off of the bolts if required. Attach the hose from the break-away coupler to the strainer inlet. Check for proper hose length for operation of the disconnect mechanism of the break-away coupler. Next, connect the manifold hose to the servo valve outlet. Check for proper hose length to avoid kinking at hinge points.

NOTE: If you are working with old/dirty nurse tanks, it is recommended to install a large magnet of some sort in the strainer screen to help catch rust and scale from the nurse tank to avoid plugging the heat exchanger, flowmeter and other plumbing.

Illustration 13A

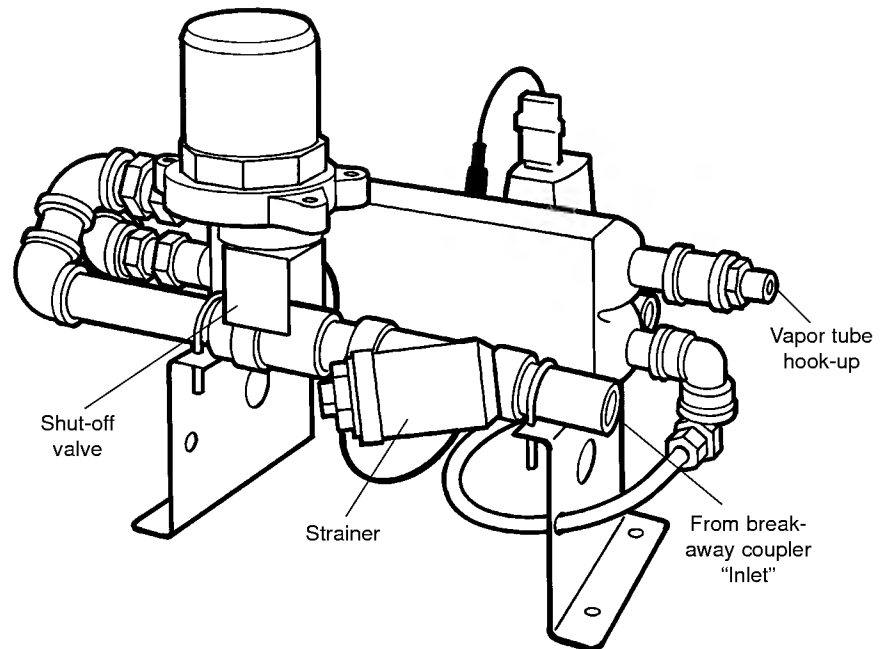
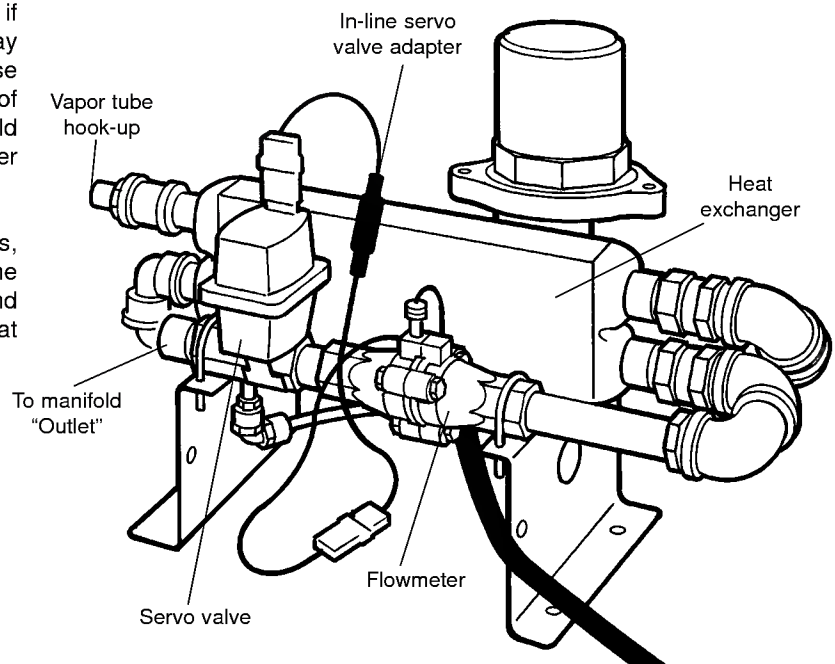


Illustration 13B



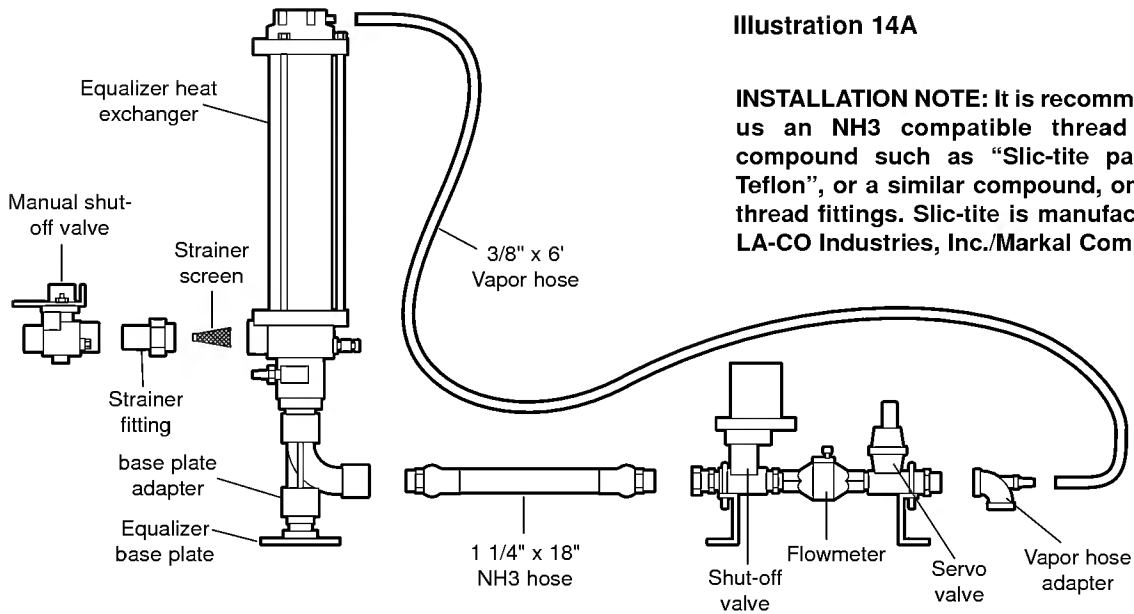


Illustration 14A

INSTALLATION NOTE: It is recommended to us an NH₃ compatible thread sealing compound such as “Slic-tite paste with Teflon”, or a similar compound, on all pipe thread fittings. Slic-tite is manufactured by LA-CO Industries, Inc./Markal Company.

Equalizer Kit Installation

Remove any existing metering valves. If the old metering valve has a built-in manifold, it is recommended to install a separate new manifold for this kit. Another option, although not recommended, is to use the existing manifold, making certain the old metering valve is in the maximum open position to allow for minimal restriction of flow through the plumbing. There also should not be any positive shut-off valves installed in the plumbing between the Equalizer kit shut-off valve and the knives.

Locate a convenient area on the applicator to install the Equalizer heat exchanger and the plumbing control panel. When selecting an installation location, keep in mind that the hose from the break-away coupler must reach the strainer inlet on the Equalizer with enough length to allow for proper operation of the disconnect mechanism of the break-away coupler and prevent kinking of the hose at hinge points. Also, the strainer screen should be accessible for regular cleaning. Make certain that the area selected allows for enough length of the manifold hose, between the manifold and the servo valve outlet, to prevent kinking at hinge points.

Install the Equalizer base plate on the tool bar (using the carriage bolts and flange lock nuts) through the base plate and bottom bracket. Trim any excess length off of the bolts if required. Install the base plate adapter and Equalizer heat exchanger onto the base plate as shown in Illustration 14A. Install the strainer screen, strainer fitting and manual shut-off valve onto the Equalizer as shown in Illustration 14B. Attach the hose from the break-away coupler to the manual shut-off valve inlet. Check for proper hose length for operation of the disconnect mechanism of the break-away coupler.

Install the 1 1/4" x 18" NH₃ hose to the base plate adapter outlet as shown. Remove the plumbing control panel from the shipping board. Connect the plumbing control panel to the 1 1/4" x 18" NH₃ hose and secure the plumbing control panel to the tool bar frame (using the carriage bolts and flange lock nuts) through the top

and bottom brackets of the plumbing panel. Install the vapor hose adapter onto the servo valve outlet. Next, connect the manifold hose to the vapor hose adapter. Check for proper hose length between the manifold and vapor hose adapter to avoid kinking at hinge points.

Locate the 3/8" x 6' vapor hose. Install one end to the hose barb fitting on the vapor hose adapter and the other end to the hose barb fitting on the top of the Equalizer heat exchanger, as illustrated. Secure the vapor hose in place with appropriate hose clamps provided with the kit.

NOTE: If you are working with old/dirty nurse tanks, it is recommended to install a large magnet of some sort in the strainer screen to help catch rust and scale from the nurse tank to avoid plugging the heat exchanger, flowmeter and other plumbing.

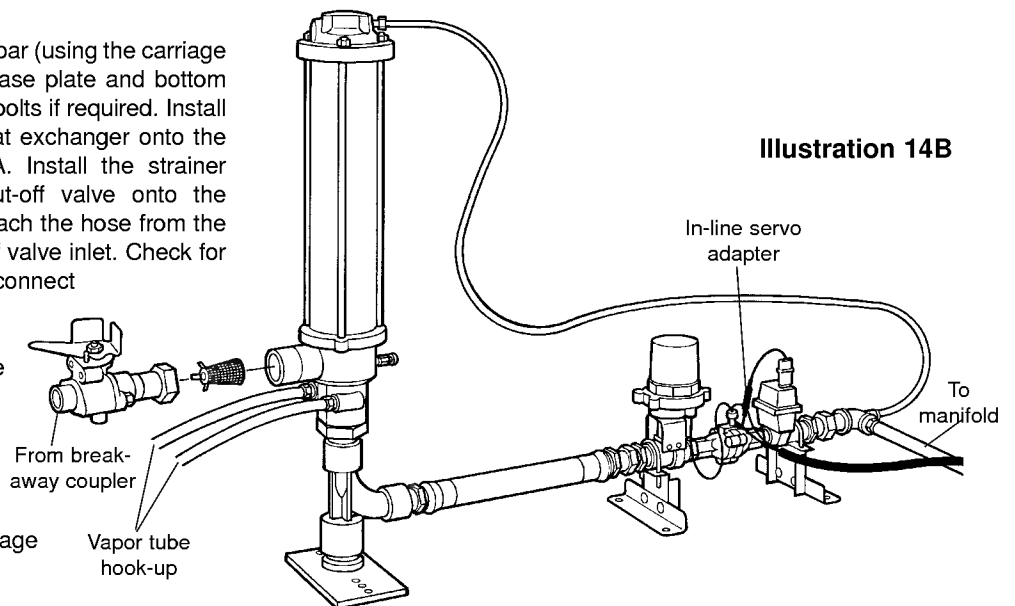
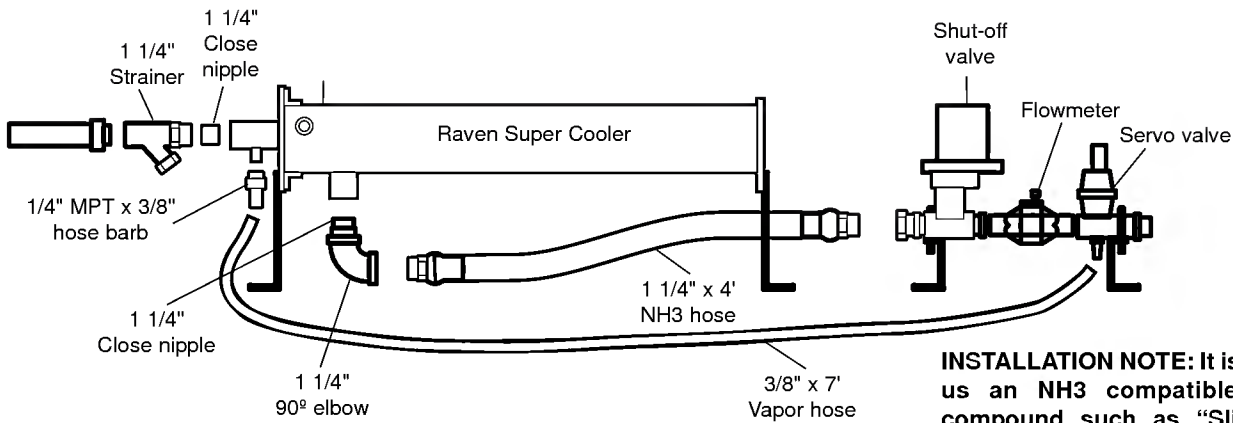


Illustration 14B

Illustration 15A



INSTALLATION NOTE: It is recommended to us an NH3 compatible thread sealing compound such as “Slic-tite paste with Teflon”, or a similar compound, on all pipe thread fittings. Slic-tite is manufactured by LA-CO Industries, Inc./Markal Company.

Raven Super Cooler Kit Installation

Remove any existing metering valves. If the old metering valve has a built-in manifold, it is recommended to install a separate new manifold for this kit. Another option, although not recommended, is to use the existing manifold, making certain the old metering valve is in the maximum open position to allow for minimal restriction of flow through the plumbing. There also should not be any positive shut-off valves installed in the plumbing between the shut-off valve and the knives.

Locate a convenient area on the applicator to install the Raven Super Cooler and the plumbing control panel. When selecting an installation location, keep in mind that the hose from the break-away coupler must reach the strainer inlet on the Super Cooler with enough length to allow for proper operation of the disconnect mechanism of the break-away coupler and prevent kinking of the hose at hinge points. Also, the strainer screen should be accessible for regular cleaning. Make certain that the area selected allows for enough length of the manifold hose, between the manifold and the servo valve outlet, to prevent kinking at hinge points.

Install the Raven Super Cooler on the tool bar following the instructions supplied from the manufacturer. Trim any excess length off of the bolts if required. Install the 1 1/4" close nipple and 1 1/4" strainer onto the Super Cooler inlet as shown in Illustration 15A. Attach the hose from the break-away coupler to the manual shut-off valve inlet. Check for proper operation of the

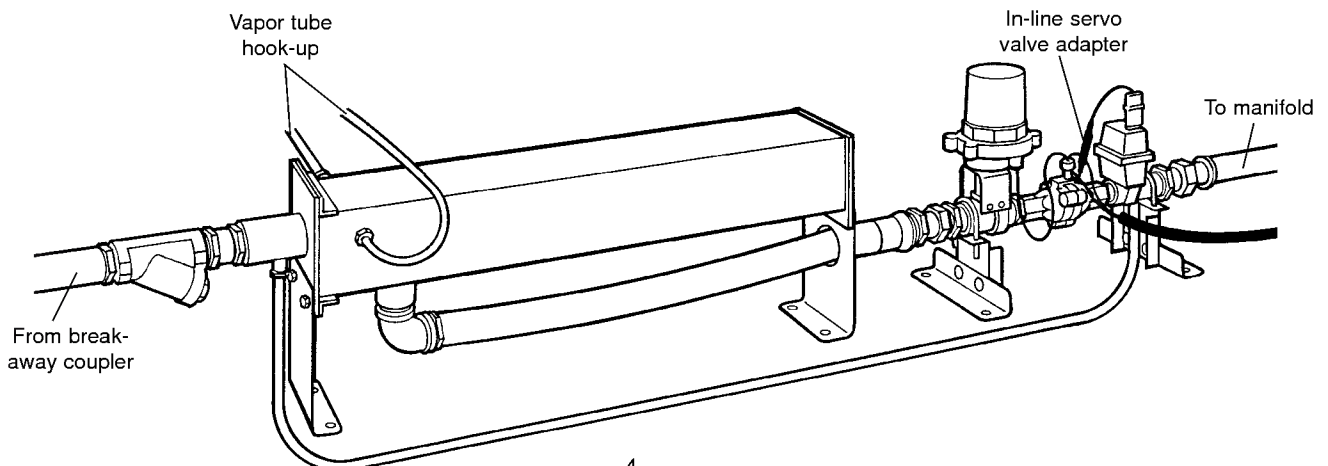
disconnect mechanism of the break-away coupler.

Install the 1 1/4" close nipple and 1 1/4" elbow on the Super Cooler outlet as shown in Illustration 15A. Install the 1 1/4" NH3 hose to the 1 1/4" elbow as shown. Remove the plumbing control panel from the shipping board. Connect the plumbing control panel to the 1 1/4" x 18" NH3 hose and secure the plumbing control panel to the tool bar frame (using the carriage bolts and flange lock nuts) through the top and bottom brackets of the plumbing panel. Install the vapor hose adapter onto the servo valve outlet. Next, connect the manifold hose to the vapor hose adapter. Check for proper hose length between the manifold and vapor hose adapter to avoid kinking at hinge points.

Install the 1/4" MPT x 3/8" hose barb fitting onto the Super Cooler inlet as shown in Illustration 15A. Locate the 3/8" x 7" vapor hose. Install one end to the hose barb fitting on the bottom of the servo valve and the other end to the hose barb fitting at the inlet of the Super Cooler, as illustrated. Secure the vapor hose in place with appropriate size nose clamps provided with the kit.

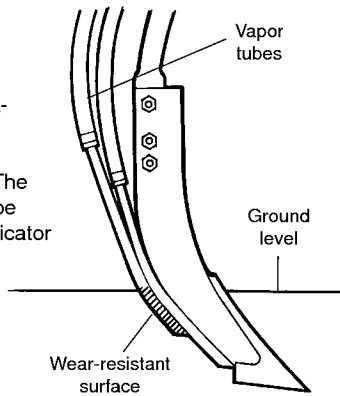
NOTE: If you are working with old/dirty nurse tanks, it is recommended to install a large magnet of some sort in with the strainer screen to help catch rust and scale from the nurse tank to avoid plugging the heat exchanger, flowmeter and other plumbing.

Illustration 15B



FOR ALL NH3 KITS

Weld the steel vapor tubes to the back of your liquid tubes. All electronic equipment, including the console and Trak-Star speed sensor, MUST BE DISCONNECTED BEFORE WELDING ON EQUIPMENT. The four steel vapor tubes should be evenly spaced across the applicator (two per side) and installed so that only their wear resistant surface contacts the soil. Mount the tubes just high enough to avoid plugging.

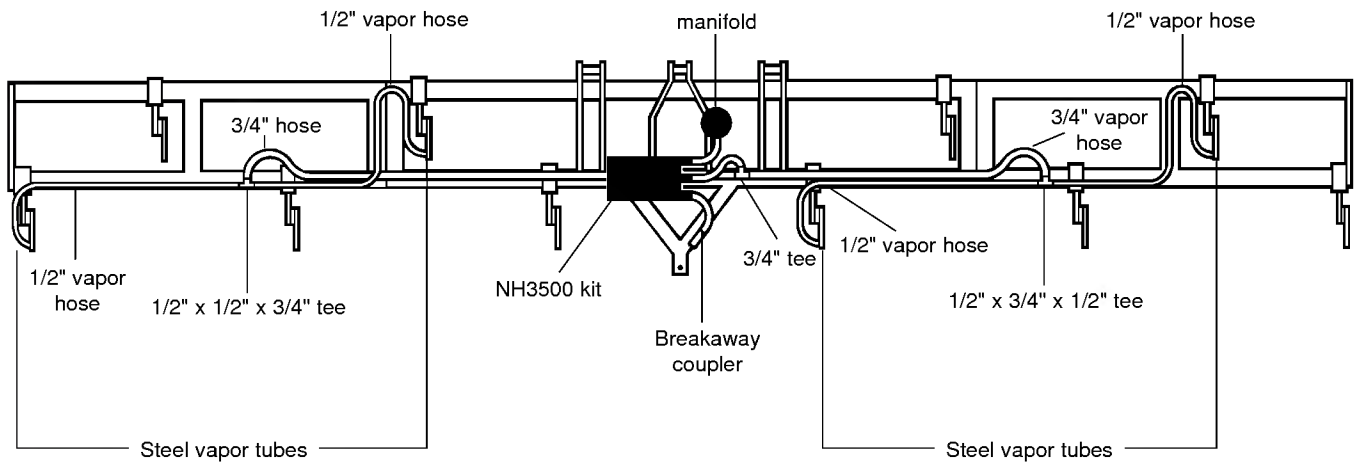


NH3500 Vapor Tube Installation

Locate the 1/2" EVA vapor hose supplied with the kit. Starting on one half of the tool bar, connect the 1/2" hose to the outside steel vapor tube. Route the hose up the shank and along the tool bar frame to the inside steel vapor tube. Allow enough extra hose to avoid kinking at hinge points. Cut the hose to length and attach to the inside steel vapor tube. Install a 1/2" x 3/4" x 1/2" tee fitting approximately halfway along this hose between the outside and inside steel vapor tubes. See *Illustration 16*. Repeat the same procedure for the steel vapor tubes on the other half of the tool bar. Secure all hoses with properly sized hose clamps. Secure the hoses to the tool bar frame with cable ties.

Locate the 3/4" EVA hose supplied with the kit. Connect to one of the 1/2" x 3/4" x 1/2" tee fittings and route along the tool bar frame to other 1/2" x 3/4" x 1/2" tee fitting. Cut to length and install on the tee fitting. Allow enough extra hose to avoid kinking at hinge points. Now install a 3/4" x 3/4" x 3/4" tee fitting approximately halfway along this hose (center of the tool bar) between the other two tee fittings. Using an appropriate length 3/4" hose, connect this tee fitting to the vapor tube connection on the NH3500 plumbing panel. Secure all hoses with properly sized hose clamps. Secure the hoses to the tool bar frame with cable ties.

Illustration 16 NH3500 Kit – Vapor Line Installation

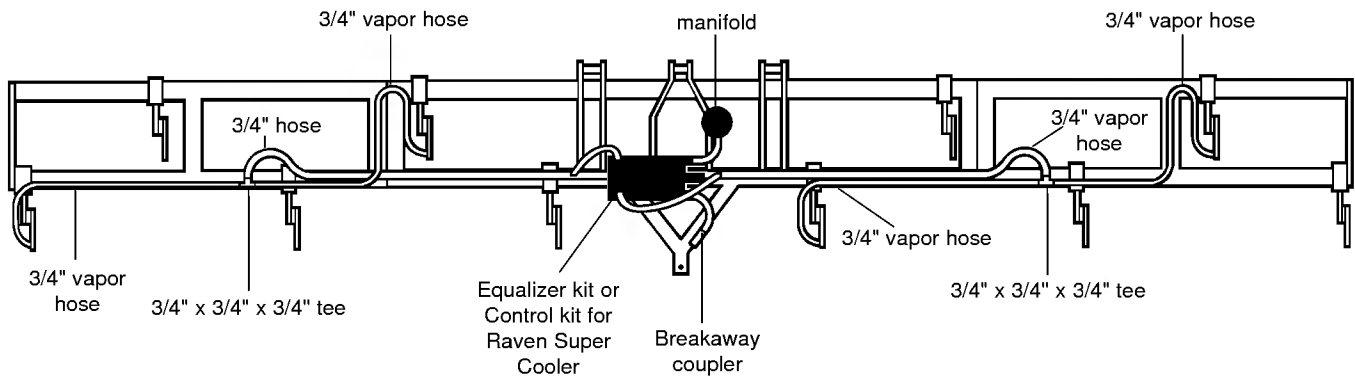


Equalizer Kit and Control Kit for Raven Super Cooler Vapor Tube Installation

Locate the 3/4" EVA vapor hose supplied with the kit. Starting on one half of the tool bar, connect the 3/4" hose to the outside steel vapor tube. Route the hose up the shank and along the tool bar frame to the inside steel vapor tube. Allow enough extra hose to avoid kinking at hinge points. Cut the hose to length and attach to the inside steel vapor tube. Install a 3/4" x 3/4" x 3/4" tee fitting approximately halfway along this hose between the outside and inside steel vapor tubes. See *Illustration 17*. Repeat the same procedure for the steel vapor tubes on the other half of the tool bar. Secure all hoses with properly sized hose clamps. Secure the hoses to the tool bar frame with cable ties.

Using the 3/4" EVA hose supplied with the kit, connect to one of the tee fittings and route along the tool bar frame to the vapor hose connections on the heat exchanger. Cut to length and install on one of the vapor fittings on the heat exchanger. Using the remaining 3/4" EVA hose, connect to the other tee fitting and route along the tool bar frame to the vapor hose connections on the heat exchanger. Cut to length and install on the remaining vapor fitting on the heat exchanger. Allow enough extra hose to avoid kinking at hinge points. Secure all hoses with properly sized hose clamps. Secure the hoses to the tool bar frame with cable ties.

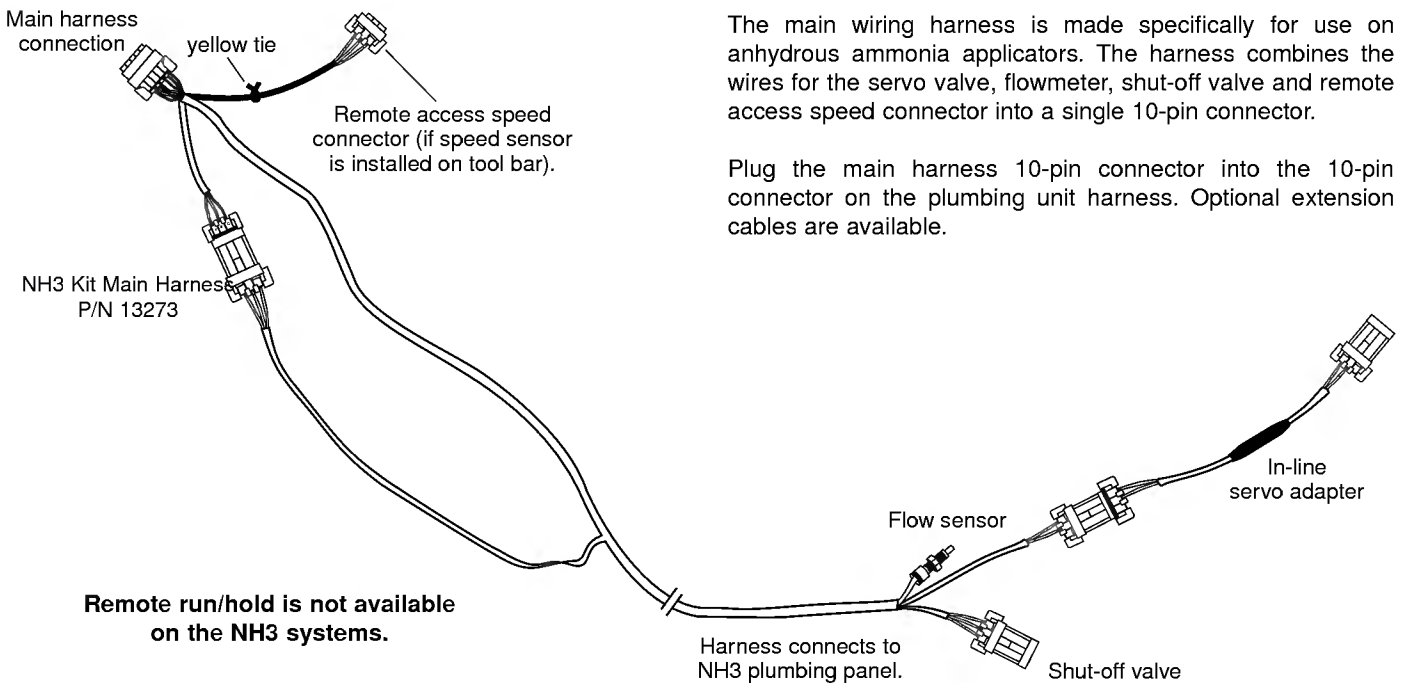
Illustration 17 Equalizer Kit / Raven Super Cooler Kit – Vapor Line Installation



Electrical

The main wiring harness is made specifically for use on anhydrous ammonia applicators. The harness combines the wires for the servo valve, flowmeter, shut-off valve and remote access speed connector into a single 10-pin connector.

Plug the main harness 10-pin connector into the 10-pin connector on the plumbing unit harness. Optional extension cables are available.



Remote run/hold is not available on the NH3 systems.

Main Harness Diagram

