File name: TD10160_Supression_Kit_Installation

Rev: 0213A

Product Identification: Suppression Kit for PCNC mills

Background:

The Suppression Kit is a set of 3 RC (resistor/capacitor) filters that will effectively suppress electrical noise generated by the on/off operation of machine contactors and any external equipment connected to the switched convenience outlet (coolant outlet).

What comes with your kit:

- 2 RC suppressors fitted with fork terminals
- 1 RC suppressor fitted with piggyback 0.250 spade terminals

What you will need

- Phillips head screw driver
- Needle nose pliers

Warning!!!

Installation of this kit requires working in the electrical cabinet. This work is dangerous if safe procedures are not followed. Furthermore, unintended changes, loose wires, and incorrect wring could put both machine and operator at risk. If you do not have the required skills you will need to find someone locally to assist you, such as a qualified electrician.

Installation in a PCNC 1100

With the machine powered up and the controller operational, move the X and Y axis such that the electrical cabinet door has clearance and can be fully opened. Do not open the door.

With the machine and the machine control computer turned off, disconnect all electrical power to the machine. With the PCNC 1100 this will be two power cords, as the machine has both 120 VAC and 230 VAC power connects. Both connections of the PCNC 1100 should be disconnected before opening the cabinet.

Open the cabinet door and find the coolant outlet. The outlet is located on the lower left-hand corner of the cabinet and has wires 200 and 204 going to it. The suppressor with the dual piggyback spade terminals will need be installed on the tabs where 204 and 200 had been, then 204 and 200 are stacked on top of the suppressor connection.

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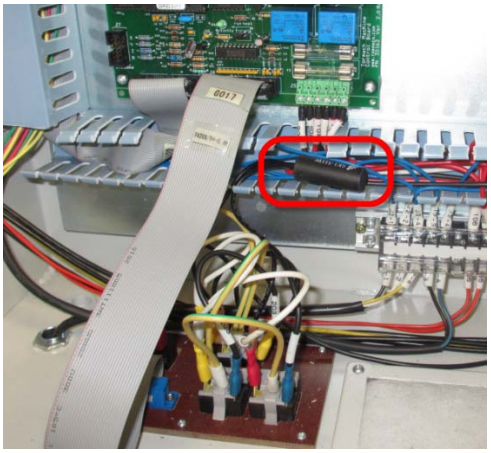
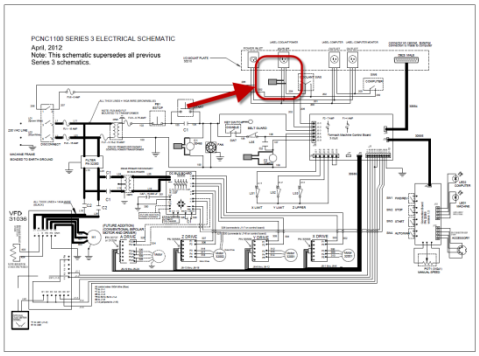
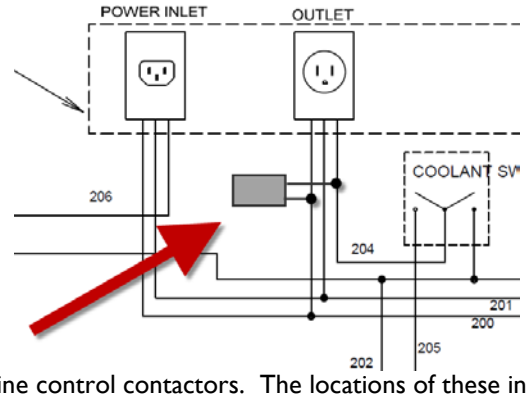
You will need to disconnect 204 (black) and 200 (white). Note which side each of these wires are on, as you will need to re-connect the wires to their original position after installing the suppressor connection. There is no polarity to the suppressor connection; it can go on either side, but the 204 and 200 wires must be returned to the same side of the outlet that they were originally on. The photo shows the cover to the wire tray removed and the suppressor in the tray. Replace the tray cover and you will have a clean installation.

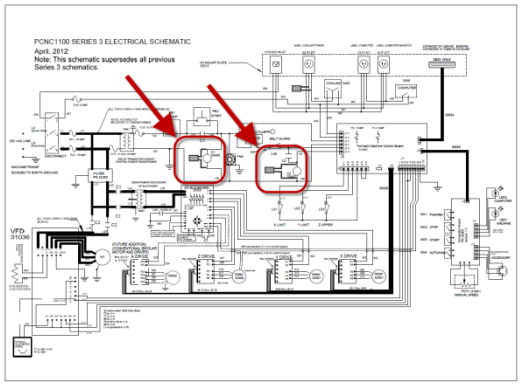


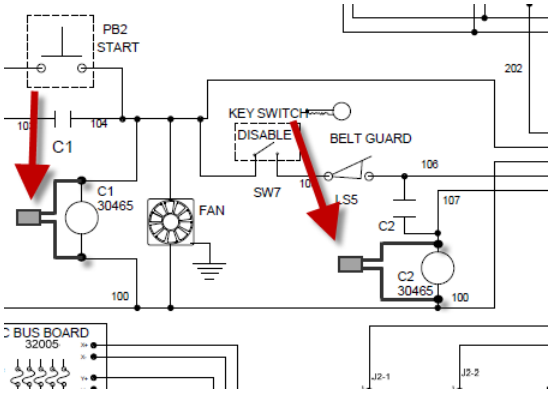
The images below are (left) overview of where the outlet suppressor is installed on the machine circuit diagram and (right) a detail view of the circuit diagram with the suppressor installed.





Next we'll install two more suppressors for the coils of the machine control contactors. The locations of these in the machine circuit diagram are shown in overview and in detail in the images below.





These will be wired directly into the coil terminals of the contactors. The C1 contactor is the primary machine power control and its suppressor is wired to terminals 104 and 100. The C2 contactor is the spindle control and its suppressor is wired to terminals 107 and 100. The contactors are shown in the image below. The connection points are on the second level, below the brown, blue, and red wires. If you need to temporarily remove one of the upper level wires to reach the connection point, make certain you replace the wire to the same position when you're done. There is room for both the original wires in those terminal as well as the suppressor wires. Make certain you have solid connections and the terminal connectors are firmly gripped after you tighten up on the screw connections. As with the suppressor on the outlet, it's easy to put the suppressor inside the wire tray.

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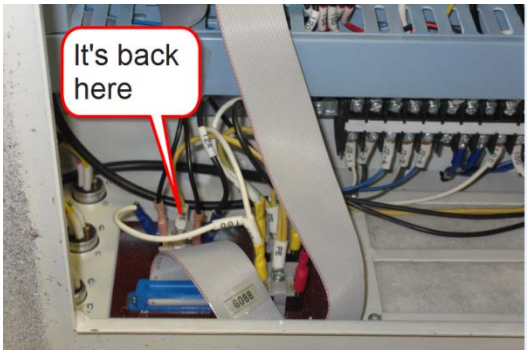
Installation in a PCNC 770

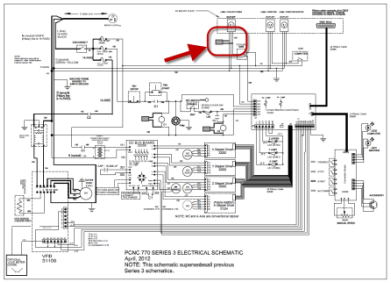
With the machine powered up and the controller operational, move the X and Y axis such that the electrical cabinet door has clearance and can be fully opened. Do not open the door until the power has been removed from the machine.

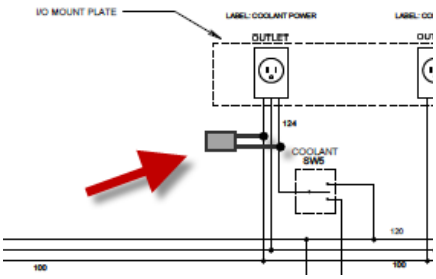
With the machine and the machine control computer turned off, disconnect all electrical power to the machine. With the PCNC 770 this will be the 120 VAC power cord.

Open the cabinet door and find the coolant outlet. This will be on the lower left hand corner of the cabinet and have wires 100 and 124 going to it. You will need to disconnect each of 124 (black) and 100 (white). The suppressor with the dual piggyback spade terminals will need be installed on the tabs where 124 and 100 had been, then 124 and 100 are stacked is stacked on top of the suppressor connection. There is no polarity to the suppressor connection; it can go on either side, but the 124 and 100 wires must be returned to the same side of the outlet that they were originally on. You'll have a better looking installation if you remove the wire tray cover and hide the suppressor inside the wire tray. Replace the tray cover and you will have a clean installation.



The images below are (left) overview of where the outlet suppressor is installed on the machine circuit diagram and (right) a detail view of the circuit diagram with the suppressor installed.





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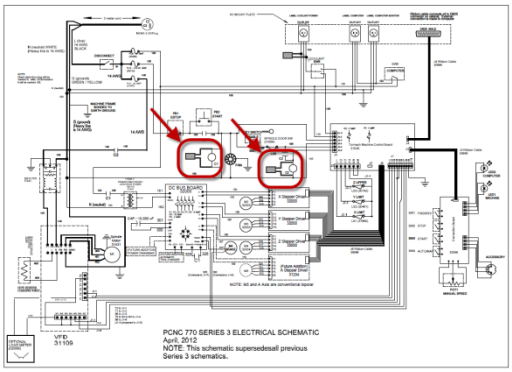
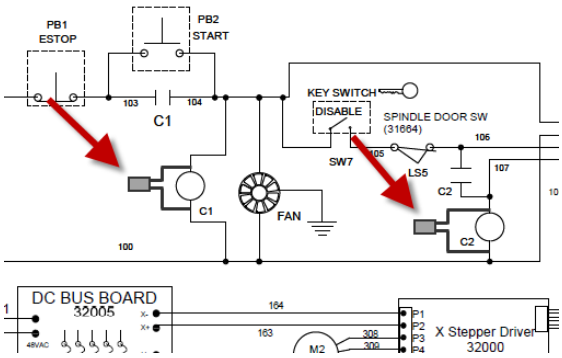
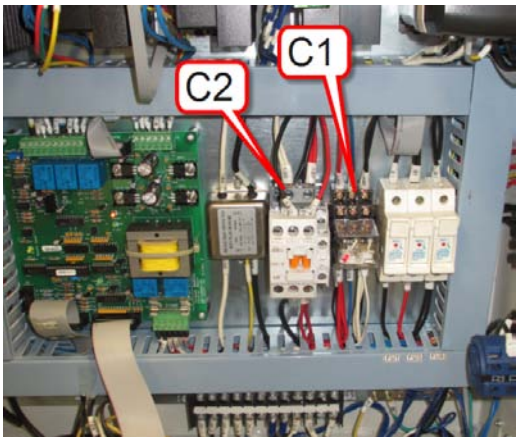
Next we'll install two more suppressors for the coils of the machine control contactors. The locations of these are shown below; left is general circuit location and right is a detail.





The physical positions are indicated in the photo below:



The suppressor leads will share the contactor terminals with the original wires. On C1, one lead of a suppressor goes into the same terminal as wire 104 and the other lead connect to the terminal with wire 100. On C2, one lead of the suppressor goes into the same termination as wire 107. The wire positions are indicated below, but remember that there may be some variation in the shape of contactor depending on your individual machine. The important part is the wire number, so don't be mislead if your contactors look a bit different.

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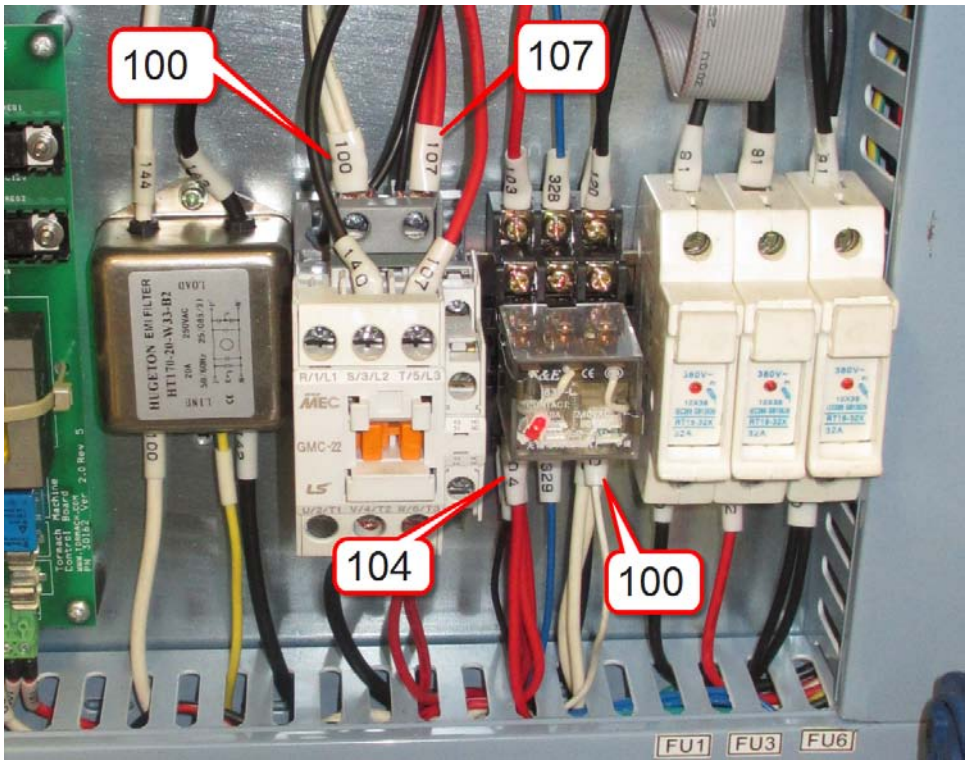

As with the suppressor on the coolant outlet, each of these suppressors can be held inside of the wire tray. Simply snap off the cover, lay the suppressor in the tray, and then replace the cover.

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