ABB VFD Build Sheet

When you order and receive your VFD unit, you will need to wire the VFD for use. First you will need to remove the VFD cover. First remove the control module by pulling straight out (see figure 1) then take screw out (see figure 2) then you can remove the cover so you can wire it. At the bottom of the VFD unit you will have holes for the wires to fit through, you will have to take out the knock outs and insert wire clamps to hold the wire once it is feed into the VFD. (see figure 3 & 4).

At the bottom of the VFD you will also see where the wires will be connected, (see figure 5). You will have three wires coming in for power, usually black, white and green, this is your single phase. You will have four wires coming out of the unit to power up equipment, usually, black, red, white and green, this is your three phase. Once you have the wire clamps installed and the wires pulled through you can now hook up the wires to the VFD.

First you will want to connect the incoming power (single phase) wires up, this will be done using the bus bar labeled MAINS. Using the three wire cable, you will hook up the black wire to the V1 connection, then the white wire will be connected to the W1 connection and then the green wire you will connect to the ground screw located down and to the left of the MAIN bus bar. (see figure 6)

Now you are ready to hook up the wires that will go out to your three phase equipment that you are wanting to run, these wires will be hooked up to the MOTOR bus bar to the right of the MAIN bus bar. The black wire will be connected to the U2 connection, the red wire will be connected to the V2 connection and the white wire will be connected to the W2 connection, and the green wire will be connected to the ground which is located down and to the right of the MOTOR bus bar. (see figure 7) Once that is completed you can put back the cover and control module.

Next you will want to wire plugs onto the other end of the cables if you have plug connections on your equipment, or leave loose so you can wire into panel box. The instructions that follows will be for wiring a plug onto the ends of the cable.

You will need to get the correct plug for your hookup of both the three wire and four wire cables (see figures 8 & 9 for the one we used 30 A 125/250V) this is a round 4 prong plug which plugs into the AC 120/240 V single phase plug on your generator (see figure 10). Once you have the plug you will start to wire, for the three wire cable (single phase) the black wire will go to the X connection, the white wire will go to the W connection and the green wire will go to the G connection (see figure 11). For the four wire cable, (three phase) the black wire will go to the X connection, the red wire will go to the Y connection, the white wire will go to the W connection and the green wire will go to the G connection, (see figure 12 & 13). Once this is completed you have the unit ready to install into the protective box.

You will want to mount your VFD into a protective box to protect it from the elements and also damage, a bigger box offers more room for ventilation. FRWA used a pelican box, (see figure 14). You will want to use a piece of plywood to mount your VFD onto as it will give it the strength to hold the VFD. ½" plywood is sufficient. Cut a piece of wood that is about the size of your VFD or a bit larger as you want to leave room in the box for U bolts if you decide to mount the box to the generator. (see figure 15, 16 & 17). Once you have the wood cut, you will then bolt or screw the piece of wood to the pelican box, make sure to use bolts or screws that are not too long or you will need to cut off as they could cause problems

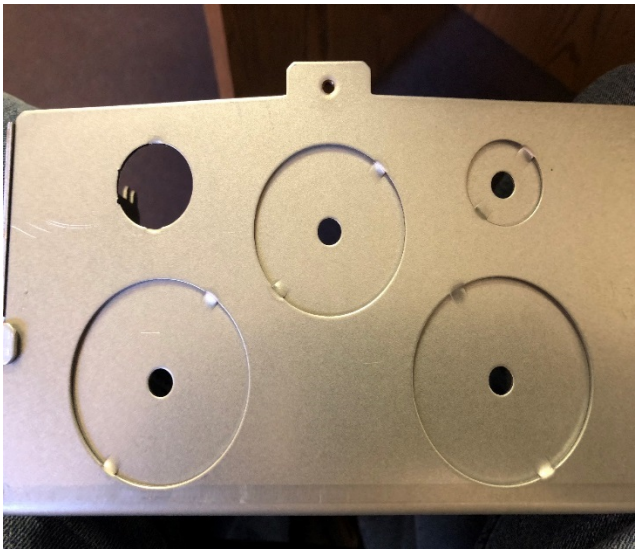
with cutting or damaging you or equipment. Once you have the wood mounted and secure, you can now attach the VFD using screws or bolts to the slots on top and bottom of the VFD. (see figure 18). Don't block or leave to little room for ventilation/cooling fan.

Now that you have the VFD secured in the box, you will need to drill holes for the wires to be able to come out of the box so that you can close the door to keep the VFD out of the elements. FRWA recommends you use a hole saw just big enough for the plugs to fit through (2" or 2 ½") and that you drill the holes on the sides of the box up towards the top of the box so that it would be more likely to keep any rain or water out of the box. (see figure 19). You will need a hole on each side, one for the single phase cable to come out of and one for the three phase cable to run your equipment to come out of. Once you have your cable ran out of the hole you should use some type of cable clamp or plug to fit into the hole to secure it from the elements. (see figure 20). Once you have completed these steps, you should use some type of caulking or sealant to fill or cover in holes or ends of screws or bolts that you have made, this will help protect the box and VFD from rain and water.

(figure 1)

(figure 2)

(figure 3)

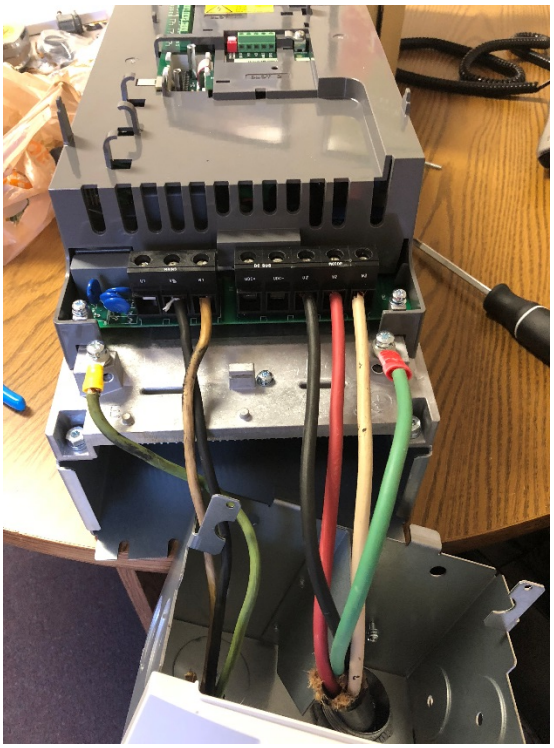


(figure 4)

(figure 5)

(figure 6)

(figure 7)

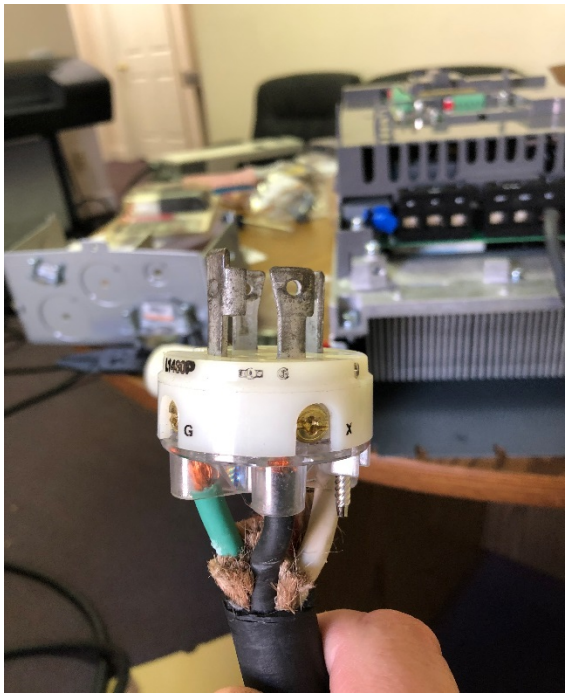


(figure 8)

(figure 9)

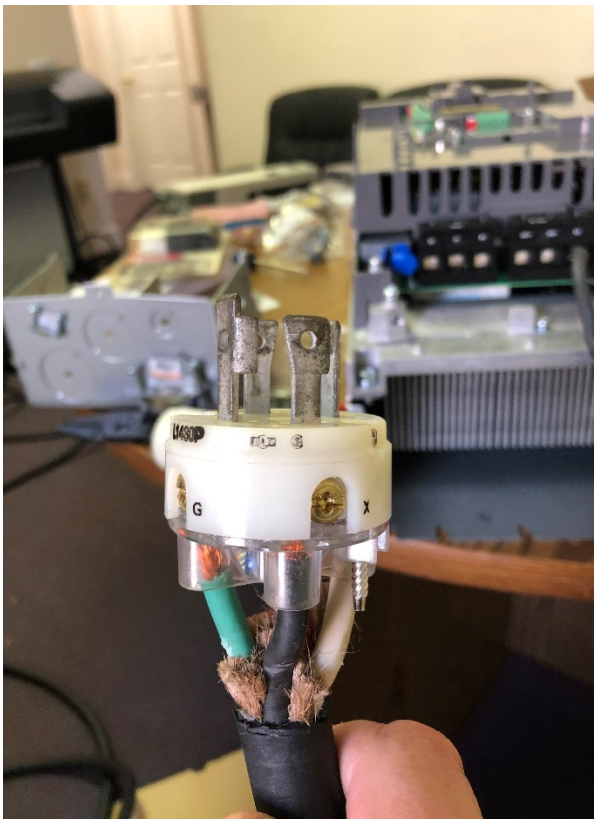
(figure 10)

(figure 11)



(figure 12)

(figure 13)

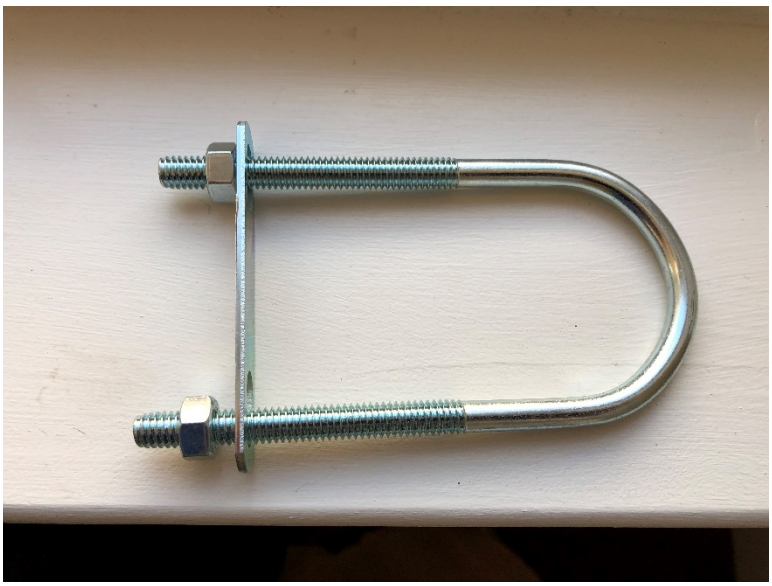


(figure 14)

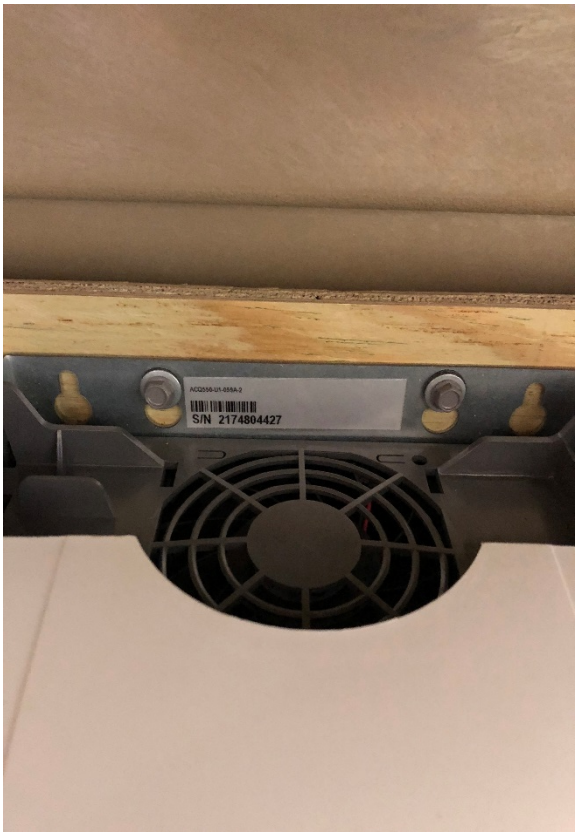
(figure 15)

(figure 16)

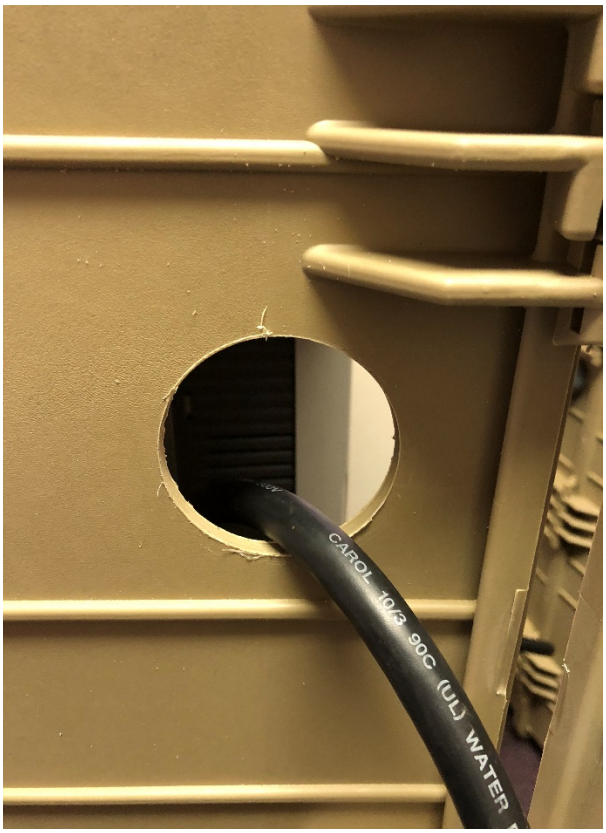
(figure 17)



(figure 18)



(figure 19)



(figure 20)