

Properly Tapping Fadal Transformers

Anytime you relocate your machine, it is a good time to measure the incoming AC voltage to make sure your machine is set up properly to run on this new supply. Even if you are only moving it a few feet and connecting it to the same breaker panel, or even the same breaker, it never hurts to make sure your transformer is tapped properly for the supply voltage.

Your machine will likely be running on a nominal 3 phase, 220VAC or 460VAC, but we need to know the EXACT incoming voltage to insure everything is healthy for the coming months of production. You have two critical electrical components that must be considered: Your spindle inverter and your amplifier chassis.

The spindle inverter must have incoming voltage between 190VAC and 240VAC MAX. If you underrate the voltage or push above 240VAC you are asking for an early failure. The amplifier chassis is not quite as critical, but under voltage is a real problem. It causes the amplifiers to push additional current to make up for the under voltage condition and can keep the amps in a redline situation; and that's never good.

Changing the voltage taps to match the incoming voltage is easy and worth the time. Photo #1 shows a typical input transformer found in all Fadal machining centers. There are some variations among the 5 or so different configurations, but the labeling is very similar and the theory of tapping is identical amongst all of them. Note the incoming power wires and jumpers. The terminal strip labels are a little different from transformer to transformer, but in this case we are tapped for 240VAC. Incoming power on A8/B8/C8 and jumpers on each section, A, B & C are between 2 & 6.

Figure 1

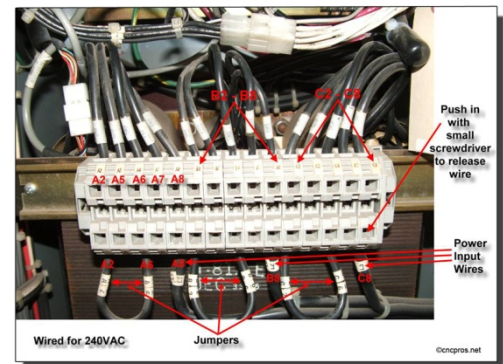
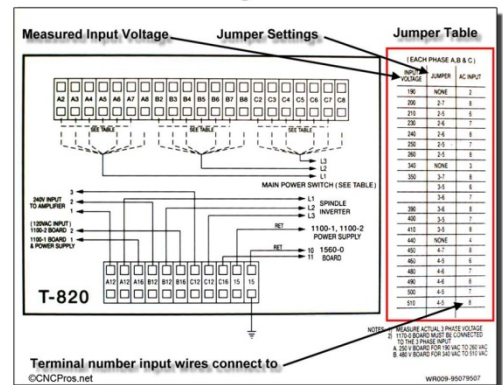


Figure 2



The procedure is simple. Measure the incoming voltage to your machine from leg to leg. Not leg to ground. Look at the INPUT VOLTAGE column shown in Photo #2 and find the voltage at exactly what you measured or the next higher voltage. Do not select the lower voltage, only the next higher one. EXAMPLE: You measure the voltage to be 204VAC leg to leg. You will see there is not a 204VAC setting, but there is a 210VAC setting. Use this one.

Here is the important info to note: When you tap higher than the incoming voltage, the secondary voltages to the inverter and amplifier chassis drops. The higher you tap, the lower the



voltage goes. We prefer to error on the side of lower voltage. The secondary of the transformer feeds the low voltage power supply looking for 120VAC, the amplifier chassis looking for approximately 90VAC (depending on your machine configuration), and your inverter is looking for an optimum voltage of 220VAC. Let's feed these components their proper diet and they'll live a long, productive life.

This little maintenance effort will pay huge dividends over the long haul, so take the time to check!