The Alternative Line

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Travel Power I

For those who are joining the Swiss Trip this August, there are a few things you should know about electrical appliances and their use enroute and in Europe. Mobile systems use Direct Current (DC) which has a fixed polarity voltage, typically based on a battery. I will write another article later about mobile power, which will soon be changing to 42 Volt systems, but if you have been able to use a device from your car, SOME of the airliner seats will have similar power outlets as your car. Check the AA.com website.

We in North America pretty much take for granted our electrical grid, and simply expect the lights to come on when we flip a switch, and our various electronic goodies to work equally well when we plug them in. But Europe is a little different. To begin with, just as the countries of the European Union (EU) were originally little fiefdoms, each has its own way of delivering electrical power. Thankfully, the electricity itself is pretty standard, but the means to access it is not, and it is NOT the same as that in the US and Canada. All land-based grids use Alternating Current (AC), which means the voltage has a waveform which looks like an "S", with the voltage being positive half the time and negative the other half.

But that is where the similarities end. North America uses 60 Hertz (Hz) AC, which means 60 cycles per second, while Europe uses 50 Hz. Few appliances would really notice it except an AC clock, whose US spec motor would run slower in Europe. Electric shavers and the like will be similarly affected. But the US voltage at the wall outlet is 110 VAC, whereas in Europe it is 240 VAC, which would destroy any device not specifically rated for that voltage. One of the EU outlets shown (Fig. 1) will be everywhere in Europe.

There are adapters sold at travel shops, Radio Shack, and many other retailers here (and in Europe), which are really just transformers which step-down the voltage to the correct power for your US spec device. But they do have total power limits, so you will be unlikely to find anything which allows you to run a coffee-maker, hair dryer, or hot-plate device. They are really intended for things like your shaver, radio/CD player, etc. You will also find on many devices, especially computers and audio devices sold worldwide, that their "power bricks" are designed for multi-voltage. These will typically have a "CE" label and say something like "100-240 V 50/60 Hz", which means they can work with AC electricity from anywhere in the world. Then the only problem is the wall outlet itself. I advise buying a two-pin Swiss adapter (Fig 2) as most universal. It will work with any outlet in the EU.

Those who travel a lot have long realized that you could dedicate an entire bag to the various plug adapters to fit the myriad outlets on the planet. Our three blade standard (Fig 1 - US) has a small flat which is wired to the "Hot" lead, a wide flat wired to the "Neutral", and a rounded or inverted "U" shape which is wired to "Ground". Were you to look at the wires for each of these, you would see Black, White and Green or uninsulated respectively. Because the white and green are actually tied together back at the breaker box, a two flat blade standard has developed which avoids the need for the separate ground lug on many devices. These will often have a "polarized" plug though, which will have a wider blade to assure it is inserted into the neutral. But for the most part that polarity is meaningless, and the device would work fine if you somehow reversed the wide and narrow blades (remember the "S" voltage?).

So the Swiss (S) adapter is a genius device. It has the same spacing as the outer pins on both the German (G) and Italian outlets, and happens to fit the British lugs as well, once something is inserted into the ground lug to open its door. Because the German pin size is marginally larger, the Swiss adapter fits fine, and the outlets are designed with adequate spring force to wipe the conductor pins well. So a Swiss adapter works with a German outlet, but not the other way around. In all cases the ground is the center port.