

## The Soapbox is Back . . . But New and Improved

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The proverbial soapbox wails its perfunctory SQUEAK-SQUEAK . . . SQUEAK-SQUEAK . . . as it is once again rolled from storage, moved into position, and readied for service.

As you may have noticed, the box has been out-of-service for a period of time, in fact due to rehabilitation. Not the fashionable Hollywood or Congressional rehab precipitated by, well, by being caught at something stupid, but this is a formidable rehabilitation of the box's inherent structure and systems. (More on this in a later editorial if you so request an enhancement.) Let's just say the box has been transformed to have extremely exquisite form and function. This is not to say that its previously well-used, broken-in, old-shoe, pragmatic persona was not appealing or utilitarian, but as we speak, all the latest updates and upgrades have been completed, in essence being an entire rebuild of the box system from the ground up.

The motive system was obviously involved in such rehab; therefore, today's aforesaid introductory sound was not a real-time squeak at all, but it was a squeak you have heard before, since it is an exact recreation of the original oil lacking casters, as previously recorded, digitally sampled, enhanced, annoyingly filtered, and permanently archived for this and other such solemn occasions. The "SQUEAK-SQUEAK" shall be heard forever! Always consistent, never wavering, forever and ever.

The proverbial soapbox. I think not. This is not your grandfather's soapbox; this is the ultimate box – the UBOX, upon which no soap shall ever be seen. Here it sits, still covered with construction dust, defaced only by a mentally adolescent finger informing to "wash me." Even though the new UBOX has permanently lubricated bearings that will never squeak, a nostalgically faded note reminds the operator of the neglected, long-overdue, oiling of casters. The UBOX. Resting so to speak, laying in wait, stoic in all its glory as a temporal platform for future oratory, in stay for just the right moment, the appropriate instance, the pertinent all-telling topic, the one issue having relevance to all things considered. So many issues, so little time.

The Court of Irks, Peeves, and General Gripes (CIP&GG) is now convened. Today's topic is cappuccino, a topic of immense dynamic property and engineering prowess. The modern cappuccino machine has packed within its bowels more than enough stuff to drive even the most reserved engineer to orgasmic proportion. Electro-mechanical systems, controls, high pressure, boilers, heaters, steamers, shutoffs,

reliefs, piping, pumps, valves, things that shake and make noise, all tidily contained in a utilitarian package, at somewhat of a consumer price. Everything to make a full-scale power plant jealous – because this unit makes *coffee!*

First the background. Cappuccino starts with "espresso," a traditional Italian coffee dating to the 1880s, so named because it was considered to be brewed "expressly" for individual customers. This was achieved by controllably forcing steam and water through finely ground compressed coffee. The basis of today's machine is to pump "nearly" boiling water through fine grounds at pressure approaching 150 psi. The latter stems from the late 1930s by a company that is still in business today. Kudos! Of course success generally means the company and family name is now owned by Company X as a division of Company Y.

Machines come in many sizes, with varying features and price points. You probably get what you pay for – but not necessarily. There is the dollar thing and the ever changing exchange thing, and all things are relative unless they are not. Yada, yada, yada. Some machines seem to have been deliberated by a committee of roving, out-of-work sport-shoe designers, while a few appear to have used a motley group who cheated on the GED. Just an impression, but how can you really know for sure? Machines range from totally user hands-on up to the super-automatic one-button does it all. Beans go in one end and espresso comes out the other. Such advertisement seems to have an input/output continuity issue, but such is consistent with today's growing need for instant gratification coupled with total lack of process understanding. If beans are a bit too mentally challenging, go for the pod. (Note: this is not the same as other "pods" with which you may be familiar.)

Frankly, making espresso is not difficult; almost anyone can do it, as attested by the corner gas station. Great espresso is a different matter that entails more variables than the standard vibration test specification. I am not a big fan of letting smart systems make my decisions, which is like design by committee. You can be sure that it will not be a total failure, but on the other hand, neither will it be a great success. Additionally, gratification it not a birthright; it has to be earned.

Variables? Oil in the bean, age of the bean, temperature after you grind the bean, the fineness of grind, the amount of tamp to be consistent with the grind and the basket. Everything has cause and effect. Parameters are tweaked, then held constant by the barista. Different bag of beans, dif-

ferent bush, different maturity, different picker, different phase of the moon, different roaster – all new parameters. Tweak! Some days I feel so many variables have been changed without my knowledge that a couple more courses in physics, chemistry, and particularly thermodynamics should have been taken. Or maybe they were taken, but . . . it was so long ago.

Espresso makes its transformation to cappuccino through the addition of micro-foamed steamed milk. "Micro" being the keyword. Such will lastingly stand tall! I am not sure that it will last more than four hours, but if it does, seek immediate assistance because your coffee will be cold. Sounds simple, but is not. Major material parameters are fat content and milk temperature. All 2% milk is not created equal, despite a federal mandate. Technique issues involve what steam pressure at what depth for how long. Successful foaming starts with a continuous low pressure sweep from the surface to full depth and back to the surface followed by high-pressure dwell near the surface to build the volume. To aid the *foamingly impaired*, companies added a "frother" to the steam wand. Fool proof! Now anyone and everyone can foam milk. Yes they can. Whereas mediocrity apparently begets gratification in today's modern society, frothed milk is just not the same as micro-foam! I have not checked, but I fully expect that there are numerous patents on how a steam jet sucks in air through tiny holes, probably called a venturi, to create frothed milk. But to truly make micro-foam I ask, is blockage of said holes with electrical tape a patent infringement or enhancement? If it is the latter, I want royalties.

Background aside, now to the mechanicals and our short topic of the CIP&GG. Given that the machine costs as much as a 5 HP shop compressor, is it too much to ask that maybe this little sleek kitchen counter top, sport-shoe-looking unit would be quieter and have less vibration than a shop compressor? Well, apparently the designer missed that part of the meeting. Maybe the design specification was misread to *include* jingling of nearby silverware, or possibly it was not misread and such jingling is supposed to be music to someone's ears. Or maybe the dancing motion of the demitasse is a market *enhancement*, because it will automatically position itself so you can catch it before it falls off, timed perfectly to when it is full of espresso. Has anyone heard of balancing? *Kind of*. How about vibration isolation? *Nope*. Damping anyone? What's *damp-en-ing*? Is anyone bothered about sound quality that matches a track hoe going down a gravel road? A *hoe*?

But high vibration level does have a value-added component. Being a slob and having spilled flour all over the kitchen counter the night before, I ended up with a perfect Chladni pattern that appeared during the next morning's ritual. I suppose to be perfectly correct, Bobby Hooke (unknown relation to Captain) should get the credit rather than Ernie Chladni, because the latter used sand, while the former used flour.

Over the years, one issue continues to be troubling. I cannot accept. I cannot adjust as best I try, and believe me I have tried. It is not natural. It is the steam valve. It opens in a clockwise direction, but this is OK, because there is a little cartoon symbol embossed black-on-black, visible only to teenage eyes or those with reading glasses under strong glancing light, informing that the right-hand rule doesn't apply here. Who thinks of this stuff? It's a valve! Open left, close right. Sport-shoe designers, hear this: get with the program. There are standards. Have you ever heard of standards? Or possibly there is a special exemption that says all cappuccino valves designed by ex-sport-shoe people shall be *bass-ackward*. Can you image sending Brutus the maintenance man out into the plant with his big cheater bar, telling him to take his brightest portable light, and asking him to look through his cheater glasses for a little black-on-black embossed cartoon identifying the correct

direction of each valve's rotation so he will not twist his stem off?

I have owned three machines. Several years ago, Machine 2 developed an electrical switch problem. It was a quality issue and the company offered replacements at no charge – user installed, of course. I took the opportunity to ask the techies about other parts that may be needed in the future. They said that the gasket would eventually need to be replaced. Well, eventually is now, and so it does. Aside from the fact that the machine is old enough that parts are no longer available, I can fashion my own gasket. Tools in hand, I attacked the area of interest. First screw is out. Next the spanner nut. Uh-oh . . . something doesn't look right here. It's not the normal Tab A – Slot B.


Using the internet – a wonderfully productive tool – I actually found a schematic. (I hate the valley girls' continuous use of *actually*, it has *totally* ruined the word.) Further search found a blog site where everyone lamented about their gasket problems, and a self-proclaimed expert offered free advice. Reading the advice and looking at the schematic, I figured that the expert was spot on, and the advice was worth much more than the price of admission.

But here's the problem. I cannot imagine anyone, except for the certifiably insane, who would design such a system. Basically, it goes like this. To replace the gasket. Open

the unit. Disconnect and remove all electrical components. This is not just the power cord but includes all wires connected to switches, solenoids, high-temp protection, etc. All of it. If it is copper wrapped with colorful insulation, it goes. A veritable rat's nest of material.

Next, disconnect and remove all plumbing, tubes, pipes, and anything that looks like it may be related to plumbing. This allows removal of the boiler assembly from the housing. Disassemble everything until you get to the gasket, which is in essence everything.

I have a hard time envisioning the person who designed this. Who would knowingly and purposefully locate a replaceable component, such as a gasket, to be the absolute very first part of an assembly? You have got to be kidding. This is most certainly a joke, right? Someone's sense of demented humor. Ha, ha! This concept is akin to pulling your car's engine so that you can change spark plugs. Oh . . . someone did that too. Probably the same person. The one who cheated on the GED.

Plan C – buy Machine 3. Crap, that pesky guy obviously changed jobs again. It also has the same left-handed valve! Go figure. 

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