Federation of Model Engineering Societies

"Steam Operated Drain Cocks"

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I was never happy with the automatic draincocks fitted to my engine, but equally was not keen on levers and cables to operate plug cocks. All too fiddly and vulnerable. I soon realised that some club members had steam operated drain cocks on their Simplex locomotives, and these seemed to be a sensible way forward. The design was known as Okadee drain cocks, involving a small conical piston within the body of the unit to seal the escape of water and steam from the cylinder when held in place by steam from a valve on the back head. Someone very kindly lent me the shaped 'D' bit to machine out the bodies, and a set was quickly manufactured and fitted. The tricky bit was lapping the little conical pistons into the valve body to get an acceptable seal. In operation they were far more effective than the automatic versions, but required dismantling, cleaning and re-lapping at fairly regular intervals.

All part of the constant maintenance regime that we are faced with when running steam engines. During one of my trips to France, I spotted some unusual looking drain cocks fitted to a number of Decauville type engines, and soon realised that they were steam operated. A few discussions using my very best technical French, and the learning of some new terms such as "purgeur" for a drain cock, a copy of the design from the 'Confrerie des Amateurs de Vapeur' (CAV) newsletter was obtained. Back in the workshop, a few doodles converted the design from millimetres to 'pouces' (inches) and a start was made on the lathe. Not really sure why I felt the conversion was necessary but at that time I suppose I was happier using fractions and BA fittings. A quick foray onto eBay found the PTFE sheet required for the membrane. The end result is a very satisfactory set of draincocks. The design is not visually compatible with UK locomotives with outside cylinders, but for inside cylinder mainline designs, or maybe larger locomotives based on narrow gauge designs, does not look out of place.

To operate the cocks, a steam valve that vents to air when closed is required, similar to a steam brake valve. These are easily made or can be found at some suppliers at the ME shows. The drawing shows the principles of the design, and the photographs below show two versions of the

design. One with the four units piped to a common live steam union, and ready to befitted to a locomotive with inside cylinders, and the other with a single central valve with and elbow unions on the outside.