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The workings of a Ferranti clock

This document was written by John Stoton and was originally published by Worthing and District SME in their newsletter in the Summer of 2009.

John reveals some of the secrets of a seventy-five-year-old family clock.

This synchronous alarm clock has been in the family since it was new in 1935.

Downgraded from bedroom use as the alarm became surplus, one could not get to sleep because it got so noisy, it has been my workshop clock these many years, but the other day it stopped. Thoughts that the bearing holes might be a bit oval were dismissed, as it would not even work upside down. The lubrication appeared to owe something to stale Vaseline and the spiders could have been poisoned by it.



The strip down, clean with special solvent grade Petroleum, re-assembly and new clock oil lubrication restored a going, if slightly noisy, workshop clock. However, the real interest is the things discovered in the course of such an exercise.

Sebastian Ferranti, of Italian extraction but born in Liverpool, designed and built London's first alternating current power station at Deptford in 1890. The firm, in various guises, made all sorts of equipment relating to electricity and its uses, particularly meters and other instruments. In the 1930's the domestic equipment division acquired Wilfred Holmes from the instrument division to add synchronous clocks to their range. By 1935 the alarm feature was available, but not self-starting.



As might be expected some good design features came through from instruments to clocks. Have you ever had trouble moving a collet which has been "fixed" by a grub screw? A good solution is to drill a depression and so leave the burrs out of the way.

But screws into plastic! Might be an early example of a modern horror, but at least the lead-in is of reduced diameter which is a real help for reassembly when the screw has to be held by "Blutack" on the screwdriver, down in a dark space.



The first wheel in the gear train was "Tufnol", this was also used for Riley motor car timing gears in the 1930's, supposedly to give a bit of flexibility and quietness. I cannot think that there was anything to do with insulation or eddy currents, perhaps a well-meaning bit of over design.

But what is that spring-loaded flywheel doing on the rotor arbor? It is lightly sprung to rotate about plus or minus one turn on the arbor. The 50 times a second stop/start of the synchronous motor already compared very favourably for smoothness with the

once a second stopping found in the anchor escapements of long case clocks. Ideas please. By the way an arbor is nothing to do with woodwork, just a horological (or horror) word for a shaft.

And, finally, the rotor shaft bearings are separate from the plate. It makes it easier to assemble the plates having the large (coned) hole in the plate. Then the spherical end of the bearing provides a self-aligning feature. The dust cap, flexible springy clip with screw and one those horrid lock washers complete the assemblage, but does the flexibility contribute to the noisiness?

