

Re: Help – 1960's vintage quartz clock in need of repair

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From: Jason D. (jpero_at_sympatico.ca)

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On Tue, 23 Nov 2004 11:36:47 +0000 (UTC), Hannahblot
<blot@blotski.com> wrote:

>Hi, I wonder if anyone might be able to help me figure out the most
>likely reason an old 1960's battery clock has stopped working.
>
>The clock has an unusual battery powered movement so i can't just swap
>it out for a more modern one. It's such a nice old retro design I
>don't want to bin it either.
>
>I have a link to a .jpg of the clock's circuit board below.
>
>My first guess is that it is the capacitor but I am unsure how I would
>go about testing this (I have a multimeter) or any of the other
>components.
>
>Runs off a single D cell battery, battery and contacts are fine.
>
><http://home.btconnect.com/metaluna/clock/clockcirc.jpg>
>
>
>Thanks
>
>Hannahblot

I'm very famillar with this design, no quartz, it uses the magnetic impulses in both directions and hair spring (thin, fine coiled spring with slot in the finger for the hairspring for setting clock (slowing balance wheel down or speed it up to correct timing error). Coil has two windings, trigger and impulse.

Couple caps is to give nice proper impulse to the magnets in the balance wheel. Resistor limits the current or to bias the transistor off. The triggering energy is done from one trigger winding that was generated by the magnets when passing through that coil. This biases the transistor on for a pulse to impulse winding to repel (or attact?)

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magnets (balance wheel had moved sufficient by then trigger–impulse happened). Happens on both directions.

I use to collect those type of movements when I was younger when they were plentiful back then (1980's). Unfortunately don't have them. Try the older clock/watch shops, they may have a bunch of those in all kinds.

The red one is poly cap, reliable. The blue one is electrolytic and tend to dry out. Change this one, watch the polarity. Black one with 3 legs is transistor. I think generic NPN transistor should do.

That coil, be very careful and gentle. Windings is made of very fine gauge.

Cheers,

Wizard