MAKE YOUR OWN SILLY PUTTY DT TIMERS

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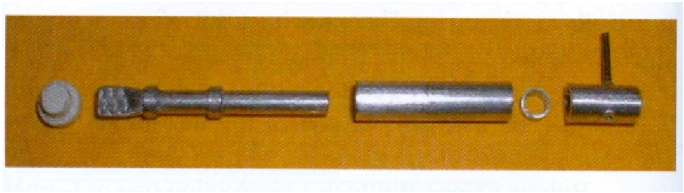
As published in the July-August 2009 Issue of SAM Speaks, Roland Friestad, Editor

Following the piece in May '07's "1066 New Clarion" about silly putty DT timers John ("Gadgets") Worsley has sent me the latest gen on the subject. It is fascinating stuff and I rushed out to the workshop to try it for myself.

The basic idea comes from the newsletter of the Scale Staffel Model Airplane Club of San Diego whose members were concerned with the possibility of fuse DTs causing fire storms in tinder-dry areas - and as we all know, California has had a number of major bush fires in recent years. So, one club member came up with the tube-in-a-tube timer which is basically a greatly improved version of the well-known button timer.

It is all so simple using three sizes (outside diameter) of K&S aluminum tube - 3mm, 4mm, and 5mm - which are available in UK model shops. By some miracle they slide into each other perfectly which makes the construction of the tube timer a doddle.



Please refer to the picture. The shaft (3mm) rotates within the casing (5mm.) on two bearings cut from 4mm tubing. One end of the shaft is flattened to form a "paddle". This is the essential bit which churns away in the silly putty, slowing everything down. A sealing collar also cut from 4mm tubing fits into one end of the casing. A plug spun up from a piece of plastic rod goes into the other end, retaining the tiny amount of putty required. The dimensions are not critical so long as you have a space of at least 1/2in. between the bearings.

Assembly: Cyano the bearings in place on the shaft. Fix the sealing collar into the casing. Slide the shaft into the casing. Tamp in silly putty around the paddle and insert the end plug. Don't glue it in until you are sure that everything is running smoothly.

There only remains to fit the winding drum which is another length of 5mm tube packed out with an identical length of 4mm tube to fit on the shaft. Drill a hole for the spigot (18/20swg). Cyano it in place and the job's done.

A few notes on construction. I learned only late in life that aluminum tubing can be cut cleanly by rolling a scalpel blade across it. Make the first revolution very carefully so that you have a continuous cutting line. Then work the blade to and fro until the component separates off. But beware! Small sections, such those 1/16in.-wide bearings, can easily ping off into outer darkness never to be seen again. To prevent this, insert a length of thin wire - 22swg or thereabouts - so that the tube sections slide out on to it as they are cut. I don't know who thought of this workshop dodge, but it's a good'un.

There is, wouldn't you know, a slight snag. The cutting action creates a small flange on the inner surface of the tubing which must be removed if all the parts are to fit together smoothly. The way to do this is to insert the shank of a drill bit into the component and run it backwards and forwards lightly over a hard surface. I use the upturned surface of a Stanley smoothing plane held in the woodworking vice. At all events, every component of a tube timer must be free of burred edges so that assembly is an easy fit and friction minimalised. Buff up all components with fine steel wool before assembly.

I found that a thin 2.5in. rubber band stretched to 5in. when you hook the line (braided cotton) on to the timer, right, provides enough pull for a positive release which is, of course, essential. My workshop experiment, at 60deg F worked out like this:

1 tum = 50 seconds - 2 turns = l min, 22 seconds
3 turns = 2 min, 5 seconds - 4 turns = 3 min, 28 seconds

It's fairly obvious that temperature changes will affect viscous timers such as this, but calibration on the field can be quickly done for different temperatures.