

A Tube-in-a-tube Dethermalizer

by Gerald Sullivan

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Editor's Note: Last month we presented a silly putty DT scheme. Here is an even more sophisticated one

The Orbiteers have an on-going discussion about non-fuse type dethermalizers. This , discussion is to promote the use of non-fuse type dethermalizers at our Otay Mesa field. They felt that in light of the recent fire-storm fires, the use of fuses might be a severe problem. I volunteered to make a report on various timers about which many members have already supplied information. This article describes a silly-putty tube in a tube dethermalizer.

Material needed: Three consecutive sizes of K&S aluminum tube. 1/16, 3/32, and 1/8 OD make a nice light DT for small models described in these notes.

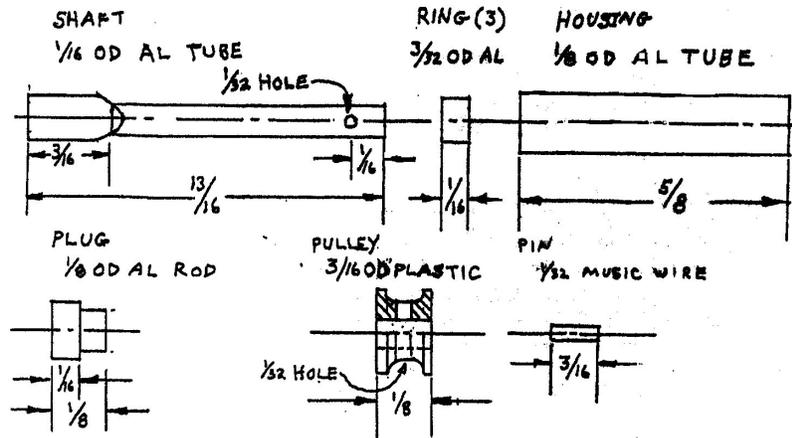
CyA glue	Silly-putty	Small length of 1/8 OD aluminum rod
Small length of 3/16 OD plastic rod		Small length of 1/32 music wire

Tools needed: Hardwire mandrels or drills (butt end) to fit the tubing.

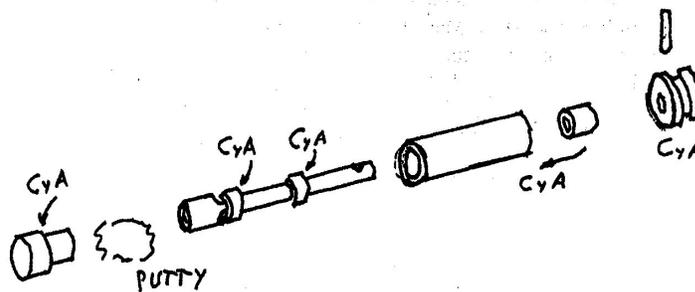
1/16 Drill	1/32 drill	Pliers	Hobby or craft knife
Dremel or electric hand drill		Small file	

Construction: Make the required parts per the drawing. Last month's Scale Staffel Newsletter detailed how to cut aluminum tubing. Make the cuts as square as possible and smooth with fine sand paper. Make three of the rings. When flattening the end of the shaft, go slowly and make sure that it fits without interference in the housing. (A 1/16 shaft flattens nicely to fit, larger shafts need care.) Do not have the rings on the shaft when flattening. The 1/8 inch OD plug can be held in the collet on a Dremel and turned down with a file. The plastic pulley is optional but provides smoother action with less actuating force.

Assembly steps: Slide one ring onto the shaft down to the flattened area. Fix with a drop of CyA. This ring must be a smooth fit in the body. Slide another ring into one end of the body making it flush with the end. This ring must be a smooth fit on the shaft. Fix with a drop of CyA. Make sure the CyA is cured, rinse with acetone or lacquer thinner. Figure where the remaining ring (smooth fit in body) has to be to provide a little clearance (.010 - .015) when fully assembled. One way is to place the remaining ring on the shaft near the 1/32 cross hole. Carefully slide the assembly into the body and then insert the plug. A little extra will allow for end clearance. Remove the plug and the shaft/ring. If all looks ' o.k. fix the ring with a drop of CyA (again rinsing with a solvent).



When all is cured and ready, put a drop of oil on the rings on the shaft, and place the shaft assembly into the body. Stuff the end of the body with silly-putty leaving a slight depression. Add the plug and (temporarily) the cross pin. Holding the plug in place, turn the shaft to see if there is uniform resistance. You might have to adjust the amount of silly-putty in the body. If all seems fine, pull the plug back to expose the joint, and fix the plug in place with a drop of CyA. Remove the pin, attach the (optional) pulley, replace the pin and secure with CyA.



The measurements may be changed to fit the application, using 3/32, 1/8 and 5/32 works if care is taken when flattening the shaft. I find that the size and shape of this dethermalizer is great for P-20's and P-30's when installed athwartships in the pylon through two (parallel) 1/18 inch holes. One end just protrudes through the pylon for support, and the business end is not too obtrusive. The normal pop-up stabilizer held with a thread and using a rubber band or spring for tension, wrap a loop around the shaft. Like all viscous timers, experiments with tension, turns, temperature are needed to provide accurate dethermalization (my spell checker didn't know that word!).