BUTTON TIMER DT SET-UP

By George White

I'm certain that the "older boys" already know this method of dealing with a button-timer type DT and have been using it for years, but I've found that a number of new guys aren't aware of it. I've also heard words of discouragement about the unreliability of these timers. While button timers may not be as precise as a carefully calibrated fuse or a radio DT, I've found them "close enough for government work" if properly set up. There are several ways to operate a button DT timer, of which this is only one, which I've found simple and successful. My only problem with these timers occurs when my brain goes into neutral and I forget to set them!

The force required to hold the stab down is often sufficiently strong enough to make regulating the rate of movement of the button timer arm almost impossible. You certainly want the stab to kick up smartly when dethermalizing takes place, so you need a means by which this is possible, and at the same time allow a controlled amount of tension on the button timer to rotate it at a specific rate.

As can be seen in the crude drawing below, I've accomplished this by the use of a peg extending from the bottom of the fuselage, around which I wrap the line from the stab two or three times, then use a spring to provide the appropriate pull on the timer. That accomplishes two purposes: it ensures a positive hold-down of the stab, and allows me to control the tension on the line which is pulling the button DT arm. By changing the number of wraps around the peg I can control the pull on the spring.

For this to be successful, a few things need to be kept in mind. You need to be able to stop the rotation of the stab when it kicks up. The older boys tell me that anything less than 45º is not really an effective DT position. Yet, you don't want the stab to flop up without control. To accomplish this, I crimp a 1/8" long piece of 3/32 aluminum tube on the pull down line as a stop where the line enters whatever device you use to carry the line to the stab as seen in the drawing.

The peg doesn't have to be either very long or obtrusive. A 1/16" peg extending 1/4" from the bottom of the fuselage is sufficient.
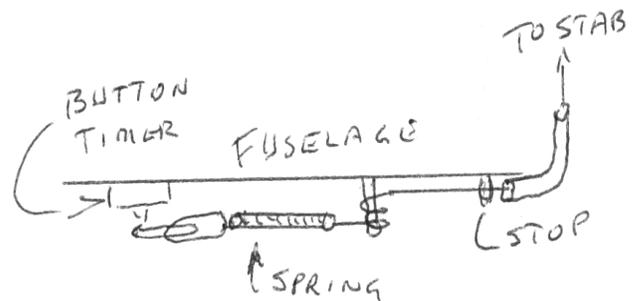
I believe one of the major complaints about button timers results from the mistaken use of a rubber band to provide the pull on the timer arm. Rubber bands do not produce repeatable tension. Combine that with the fact that button timers are sensitive to ambient temperature, and you have a very unreliable setup. I've discovered that an 18" long piece of .009" piano wire, made into a spring on a 1/16" mandrel makes the most reliable timer-arm tensioner I know of.

I first make a loop for one end of the spring which will connect the spring to the timer arm. This will need to be a couple of inches long. Then I pull down the stab, wrap the pull-down line around the peg two or three times and loop it through the other end of the spring. By shortening or lengthening the line from the peg to the spring, you can gauge the amount of pull on the spring which will get you a reasonable rate of turn on the timer. When you're satisfied, mark the line where it enters the spring and tie it to the spring at that point.

One final word of caution. It's critical that the pull down line you use to wrap around the peg as well as the loop pulling on the timer be of soft, highly flexible braided material. The one type I've found which meets that criteria is what fly fishermen call "backing." You should be able to find that at any good sporting goods store or you can beg a few feet from a fly fisherman. If you use monofilament line or any other line which tends to take a set, the line may not unrap itself from the peg. Also, the line used for the loop driving the timer needs to be very smooth or there is a chance it will hang on the timer arm.

The wise user of button timers will always do a time check on his timer before commencing flying each day. Temperature has a major influence on the speed of the timer.

Below is the setup on my FA Moth.