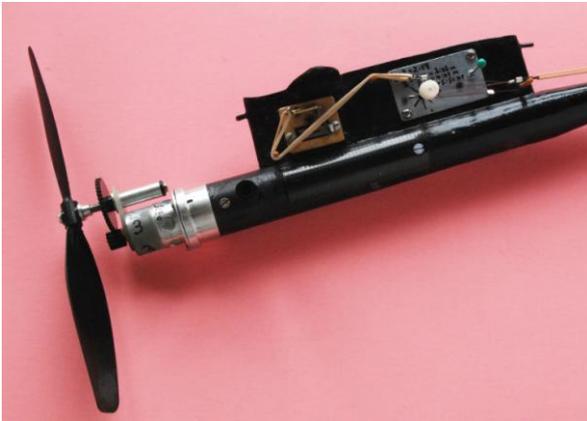


Tomy Timer Switching for E30

by
Trevor Grey

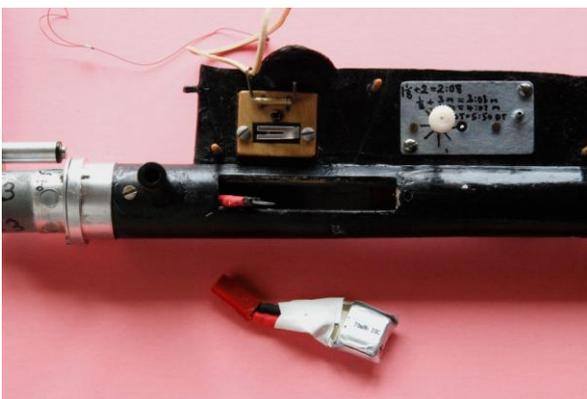
Switching motors seems to cause confusion with Electric models. Here I want to show that it's much simpler than most people think. We're using an existing Tomy timer, used for DT, to switch the motor off at the end of the allowed 60 second run.

Electrically E30 is the simplest class of all and certainly the easiest to understand.

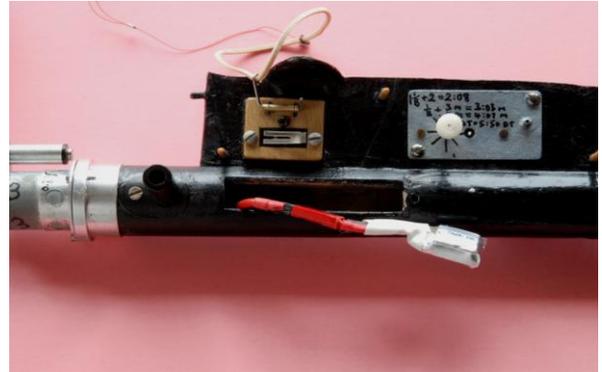


(1)

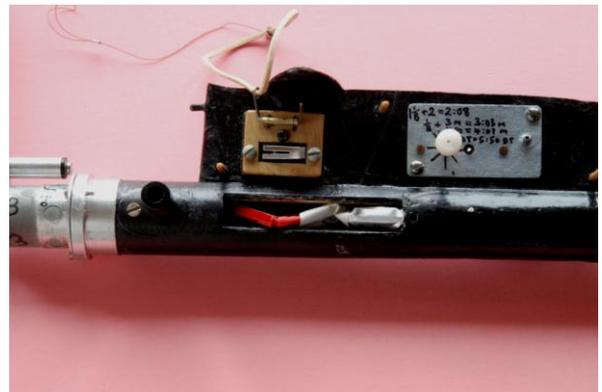
Photo 1 shows the front end of an existing model with the motor to the left, the start switch (actually a switching plug) to its right and a shut-off switch, above, under the wing mount. The switching plug, used for starting, was installed when just Nicad batteries were used. If you still want to use Nicads (if you can get hold of them...) then this switching plug allows you to charge the battery in the model. Removing the plug starts the motor.



(2)

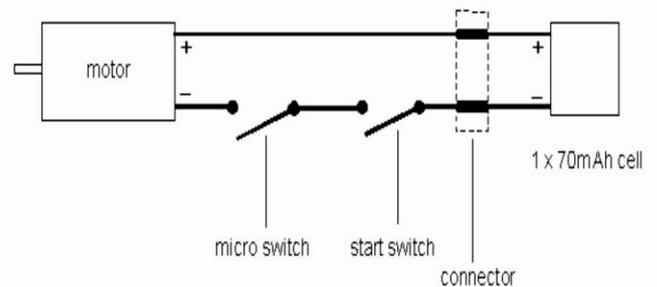


(3)



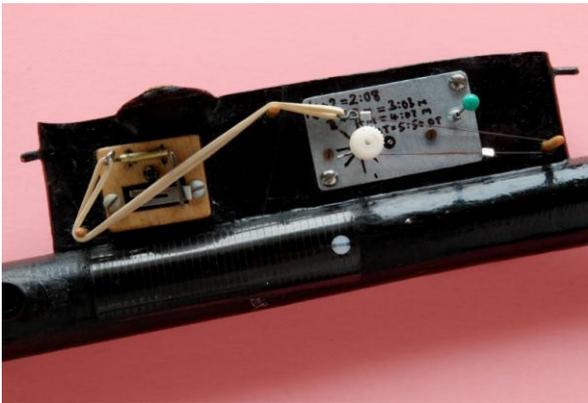
(4)

If you're using the allowed single 70mAh Lipo cell then just a simple switch will do. Lipo cells should be charged outside the model. Photos 2, 3 and 4 show how the Lipo cell can be installed.



(Fig 1)

The wiring diagram (Fig.1) should make things clear. One wire goes direct from the battery to the 'Brushed' motor. The second wire goes from the battery, via the start switch and the shut off micro switch, to the other motor connection. The micro switch and the start switch are in series so both must be closed to start the motor. To set for flight, the micro switch is locked down by a wire arm, rubber band and Nylon loop that goes to a small arm on the Tomy timer shaft (Photo 5). To fly you activate the start switch – closing the final link in the circuit and starting the motor – then start the timer and launch.



(5)

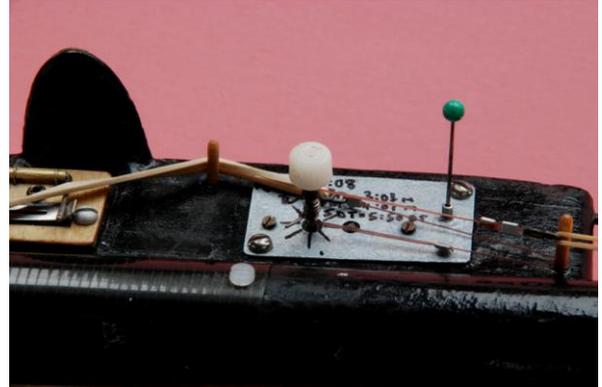
My set-up is fairly crude but works well... The sub-miniature micro switch is secured with a balsa block and two 2mm nylon screws behind the small ply plate. The balsa block is glued and screwed to the back of the ply plate and sits in an aperture in the plate. The 22g piano wire activating arm is pivoted in a short brass tube glued and bound to the front of the ply plate (Photo 6).



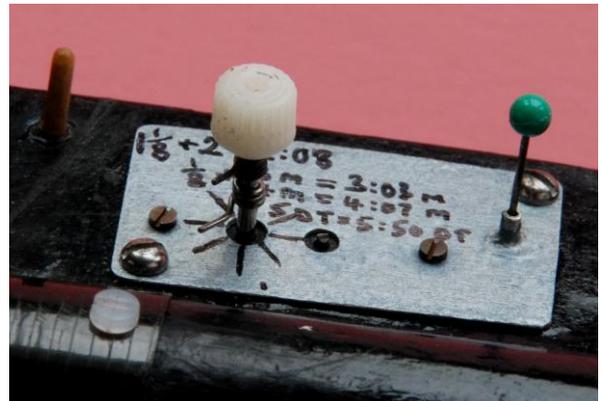
(6)

One end of a medium size rubber band (about 1 inch long) is attached to the loop bent into the end of the arm. The other end

of the rubber band is connected to a Nylon line via a small 'figure of eight' wire connector. The Nylon line finishes in a long loop – about 1 to 1.5 inches long which, after travelling over three pegs, arrives at the timer shaft from the same direction as the DT line (Photo 7).



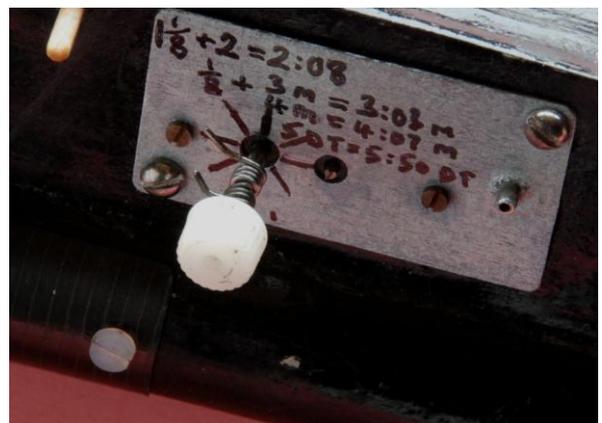
(7)



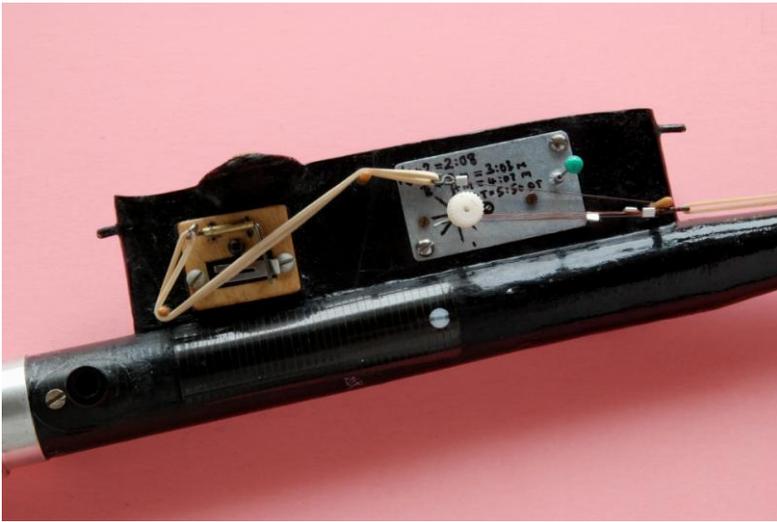
(8)

Each line – motor shut off and DT – is attached to the Tomy motor shaft via a separate arm... Thus DT and motor shut off can be controlled individually.

Photo 8 shows a close-up of the basic 'arms' without the band and loop, and Photo 9 shows them from a top view.



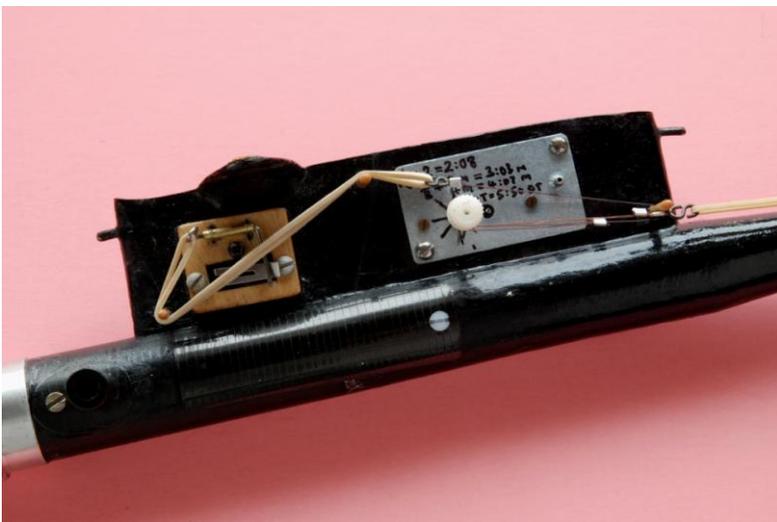
(9)



(10)

To set up for flight the timer is wound from rest to the release point – usually one turn – and then the lock pin inserted. Now the DT line is attached and the timer wound to the required total flight time 'less' one minute.

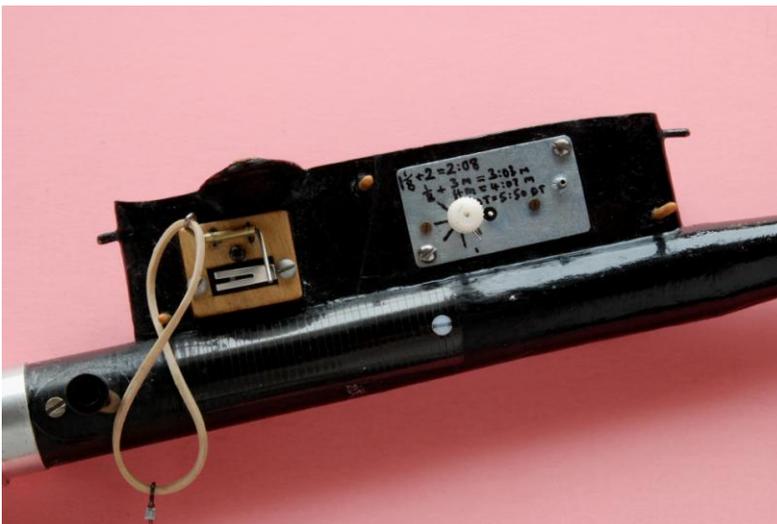
Now the motor shut off loop is attached and the last 'minute' wound on.



(11)

When you're ready to fly, the motor start switch is activated and then the timer lock pin removed and the model launched. Given that you take about 1 to 2 seconds to release the model from pulling the timer lock pin, then you need your motor run set to about 60 to 61 seconds to ensure that you get a 'full' run, but not an over-run.

Photos 10, 11 and 12 shows the sequence to the final release of the DT line.



(12)

