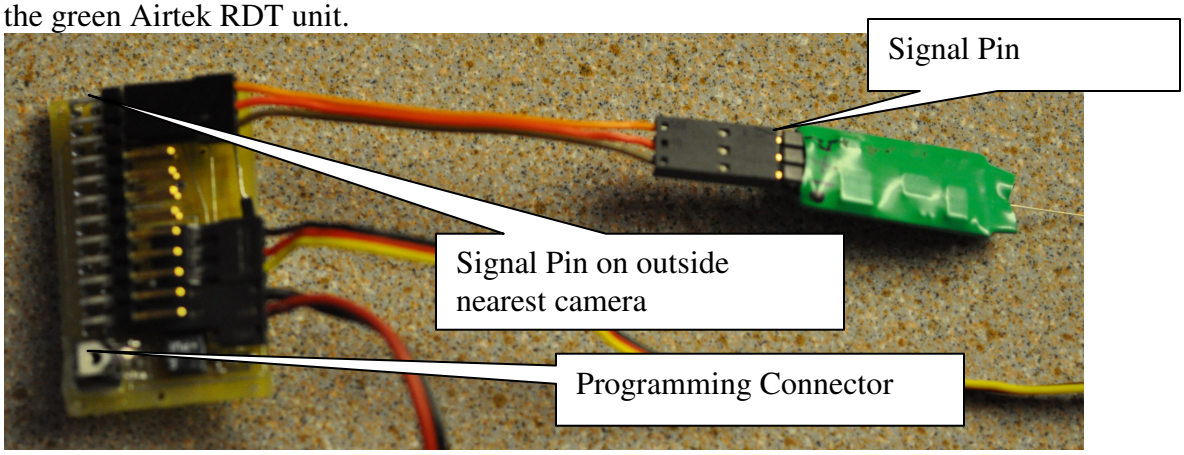
Magic Timers Tech Note 20.1

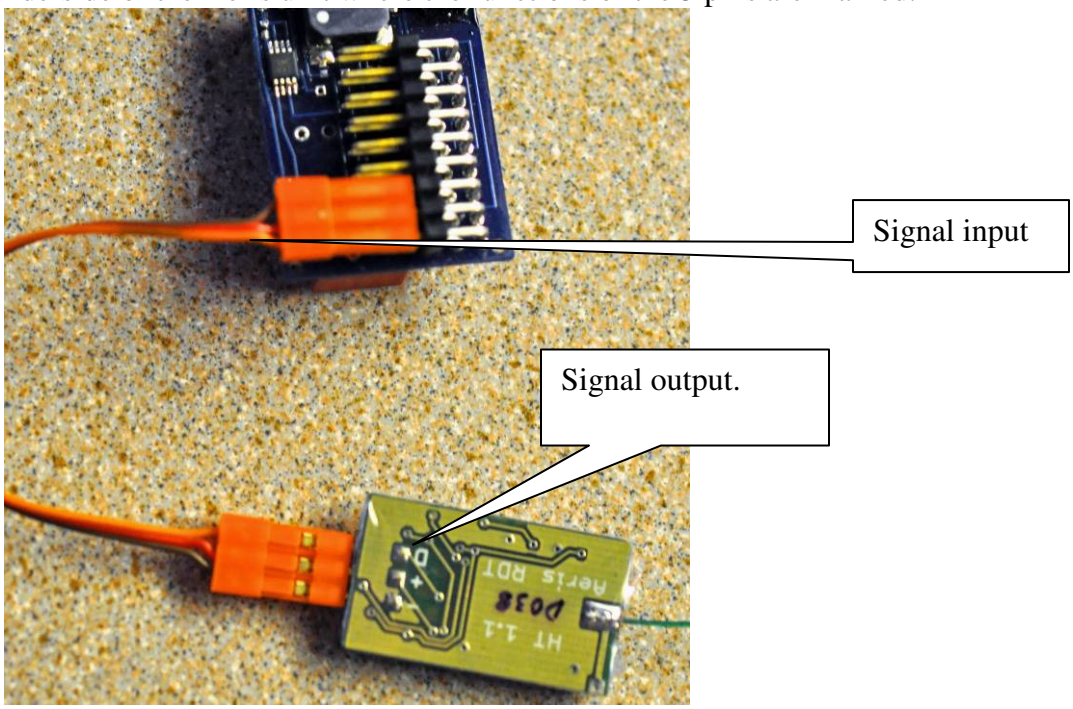
Connecting the Airtek or Aeris RDT to a Black Magic Universal Timer

Connection

Connect the Airtek RDT to the Timer as in the picture. This picture shows the back view of an Extended Magic timer. The connection to a standard Universal Timer is the same, on the last 3 pins if the outer row. You can see the square wave signal symbol marked on the green Airtek RDT unit.

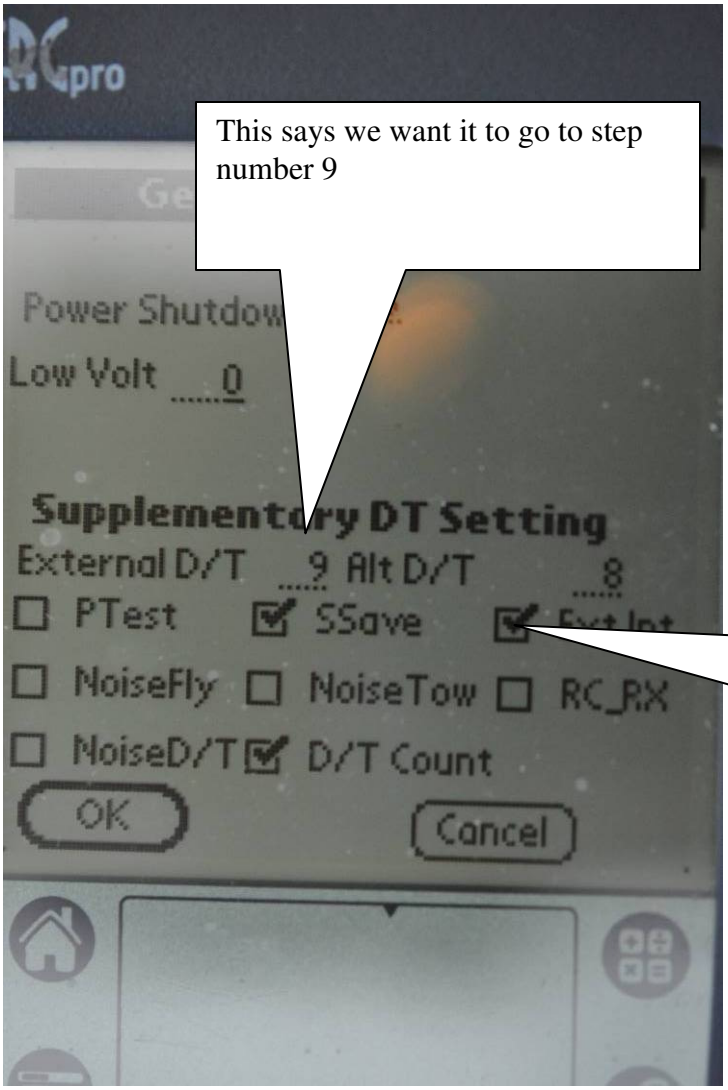


The picture below shows connecting an Aeris RDT Rx to a Universal timer. The programming connector is just visible at the top of the picture. The Picture shows the underside of the Aeris unit where the functions of the 3 pins are marked.



Programming the Timer – Step 1, defining the RDT step.

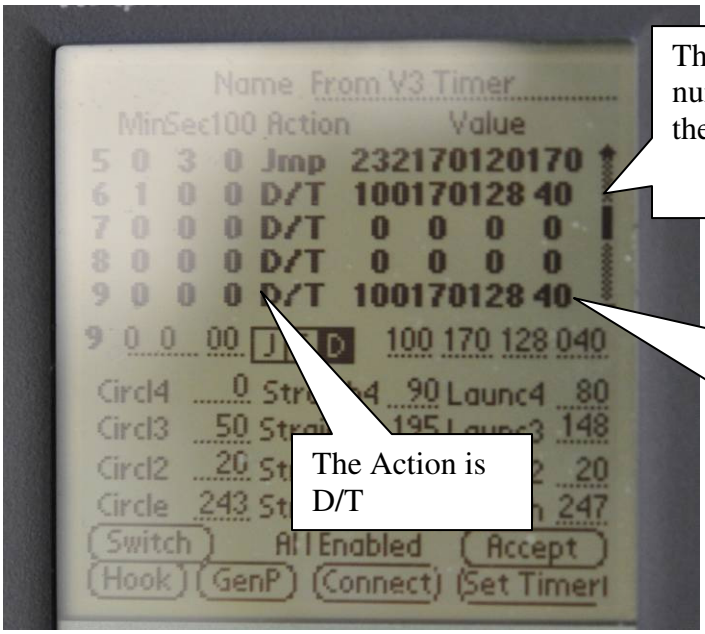
The timer has to be programmed as follows. Indicate what program step you want to be executed when the DT button is pushed.



If the timer is one that supports and alternate d/t or a radio D/T check the Ext Int box

Programming the Timer – Step 2 – defining the D/T actions

Now you need to indicate what happens in D/T step, in our example step number 9



The regular sequence D/T step is number 6 on this airplane. Note the D/T time is one minute

Step 9 – the Radio D/T step. Note that all the servo positions are the same as the regular D/T step. BUT the time is zero. That means when the Radio D/T Button is pushed the step executed immediately and airplane will D/T

The Action is D/T

The example shows the program from a 4 servo extended timer. Note that on the D/T step you specify the action for all the servos not just the one controlling the D/T action. So if you wanted besides popping the Stabilizer to D/T the model you could [for example] change the position of the rudder to make the model come down straighter [id the rudder was controlled by a servo!] This includes the case of a F1Q model where the motor controller is treated like one of the servos so for a F1Q model you stop the motor and D/T the model.

When you push the D/T button you want the timer to go to a step that has the D/T settings for all the servos and a zero or very short delay. In the example above if you made it go to the regular D/T step, number 6 , it would go to that step, wait a minute and then D/T the model. Probably not what you want.

The action for the D/T step should be D for D/T as this will put the timer into sleep mode after the step is executed.

In these examples we have shown executing just a single timer step on D/T. It is possible to execute a series of steps if you want. A possible example would be on a power model stopping the motor then a short time later making the D/T work. To do this you make the DT step be a J for Jump step and on that step move the appropriate step to stop the motor,

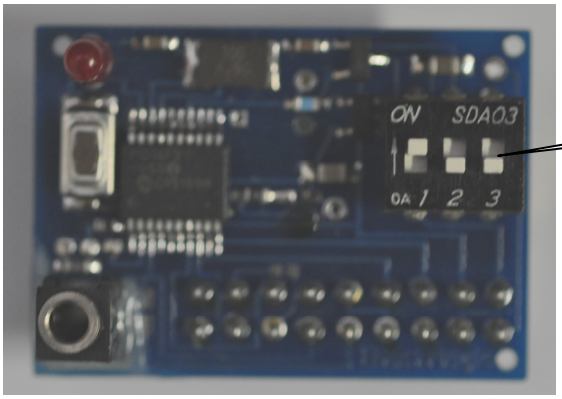
then follow that in sequence by another step, with action of D for D/T this timer. This latter step with a delay or [for example] 2 seconds would pop the stab and D/T the model.

Special comment for timers with the servo park function. Some high end timers in the Magic Timer family have the servo park function. This moves the servo to a designated park position after the model has D/Ted. Most times this will not affect the main D/T function as typically that is a non-reversible action that releases the stabilizer. However care must be taken not to turn on the electric motor with a F1Q model or to put the rudder in apposition that might cause the model to spin.

Testing the timer without the RDT Rx.

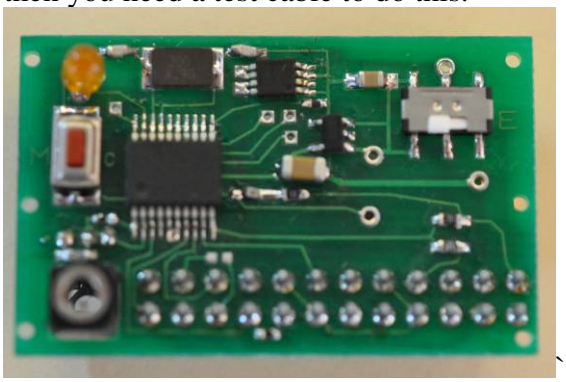
You can test that you have configured the timer correctly without connecting the RDT Rx. The way this is done depends on the model of timer

For a Universal 1, 2 or 3 servo timers you set up the timer and turn it on. If it is a F1A timer the hook has to be pulled forward one time. Except for that special condition the RDT will work even before the flight starts.



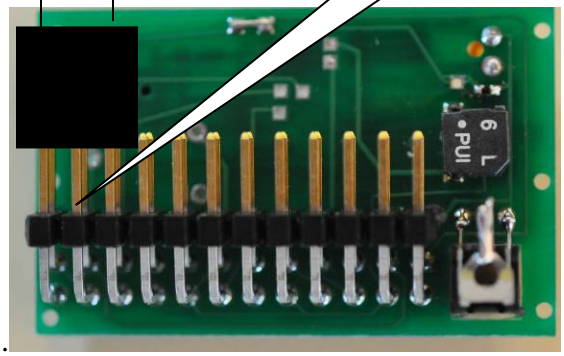
Move switch 3 to the on position and it will activate the RDT. Switch it back after the test.

If the timer is Extended liked this one or another model that does not have the 3 switches then you need a test cable to do this.



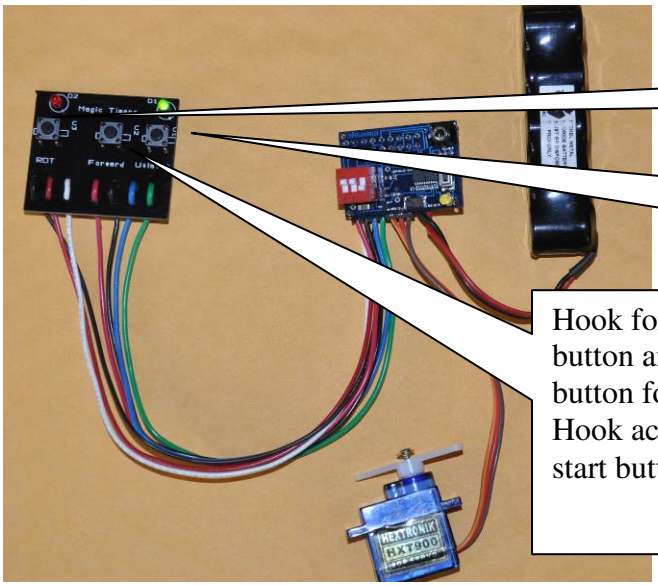
Simple test cable that momentarily connects the RDT signal to the RDT ground

Take care not to touch the RDT +5 volts



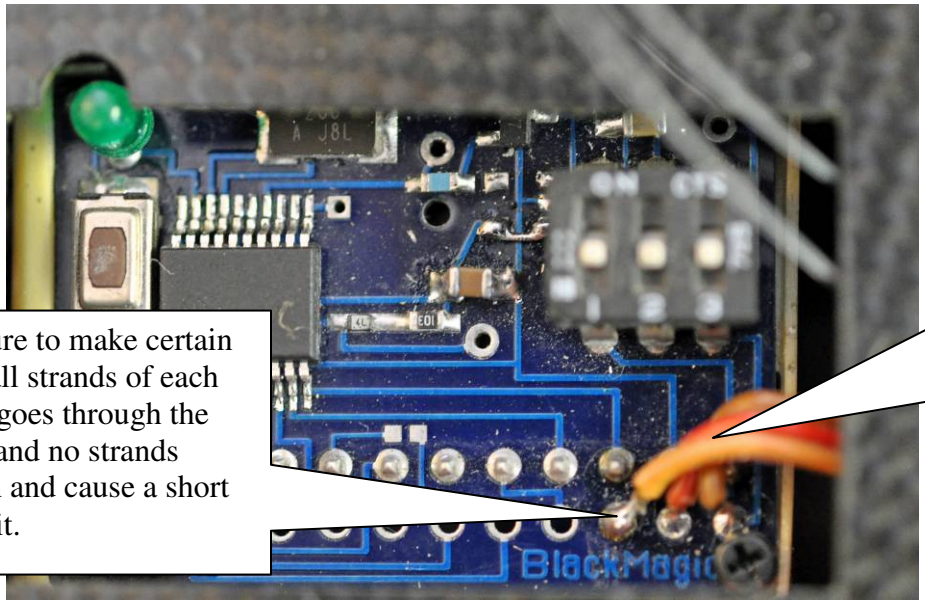
Be sure to check the timer pin out for your particular timer before making the cable.

If you configure a lot of timers or belong to a club with several magic Timers users, you may want to purchase the Test harness from Magic Timers that helps with the set up.



Retrofitted Single servo timer

In the above pictures the RDT Rx units are shown being connected to a Magic timer with 2 rows of pins. This is the preferred way of doing it. However there are some single servo Magic timers that were ordered with a single row of pins. Most of these timers have been installed in F1B airplanes. If these timers are Universal timer and support RDT they can be retrofitted to permit the connection of an RDT Rx. There are two ways of doing this. One is to add 3 pins and plug the timer in as about. The second is to solder a cable directly to the timer as in the picture below.



This is a Vivchar F1B, the RDT Rx is in the back of the pylon behind the timer. We do not normally recommend soldering wires to the timer board because the solder joint is unsupported and may break. Also the wire used for the connection must be multi-strand to have maximum flexibility so care must be taken to get all the fine wires through the hole in the circuit board and soldered so that none touch.