S3A Dethermalizer: The Spanish Team Way

The Spanish team has been using a fuse based DT system for many years in FAI competion and has had a high success rate with multiple team and individual medals over the years. They normally do not have a large recovery team, so anything that helps them get models back is a plus.

Jordi Roura has been making these systems for the team to use and has the techniques down. I am showing you one of the models he prepared for us to use at US based world cup events.

At its heart, the system uses a slow buring DT fuse (SIG brand works and is available here) that is lit just before liftoff to burn a release string that holds the majority of the shroud lines. There is a single leash line that remains attached to the shock cord to allow the model to descend under a deflated parachute.

Tools you will need-

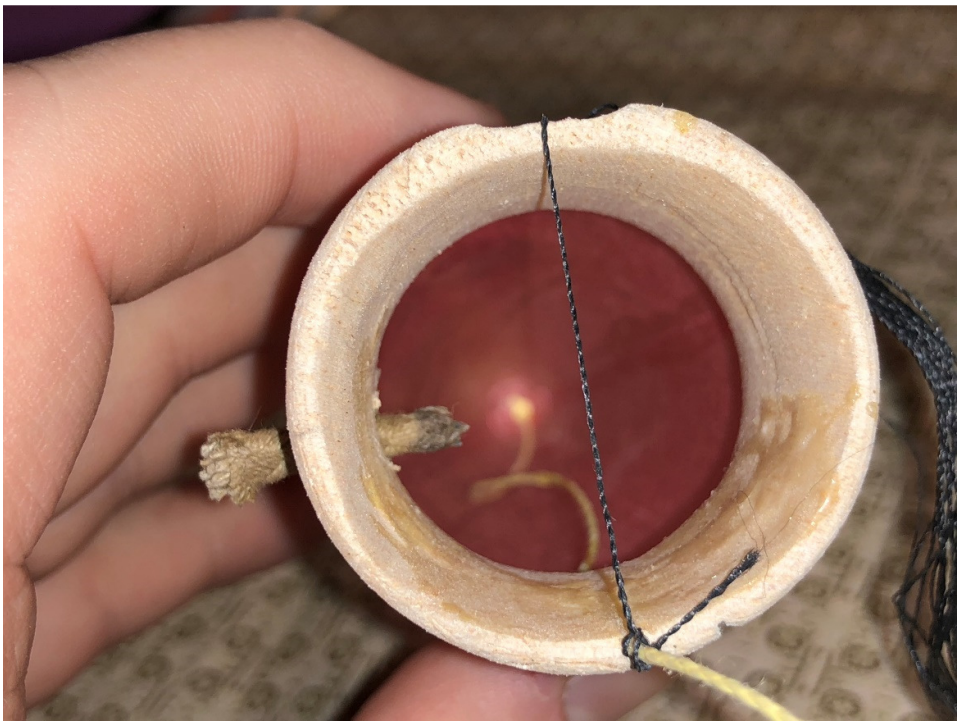
Hole punch

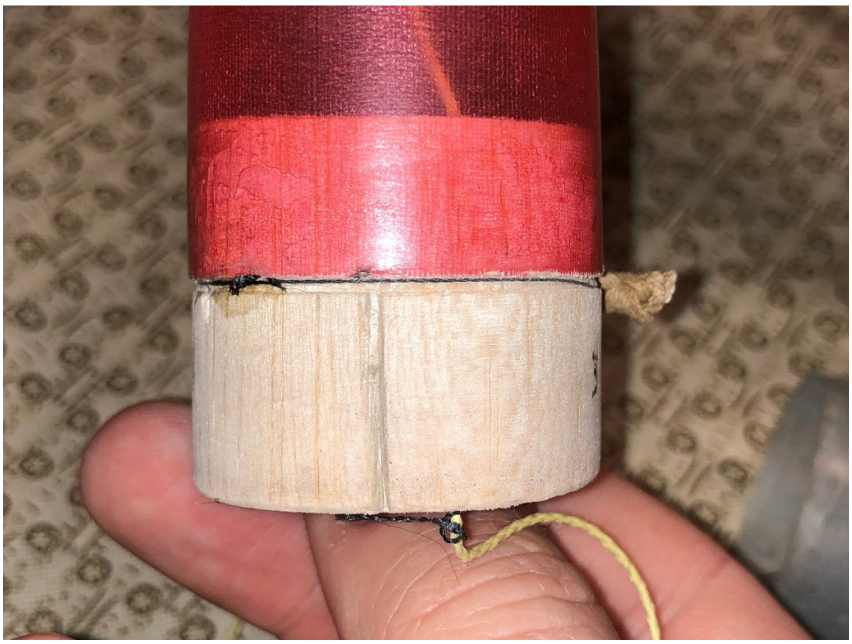
Needle and thread

Fuse long enough for your max, +1 minute

Here are some photos, and some description of the parts and the operation.

Jordi carves a hollow balsa wood shouler to hold the fuse, release string, and shroud lines together. I can't think of a reason why a foam shoulder couldn't be used.





There is a hole drilled in the shoulder to hold the fuse. A hole punch is used to make corresponding notches in the base of the nose cone and the top of the body tube. A small groove is carved just below where the nose cone ends to hold the burn string. Two notches are made to hold the shoud lines (wide and shallow) and the shock cord (narrow and deeper). The shock cord is glued to the inner surface of the shoulder.

When you make your parachute, gather all the lines together and form a loop at the base. The burn string will pass through this loop and hold the parachute to the shoulder. Pick one shroud attachment point and attach one extra leash line. It should be a little longer than the shroud line.

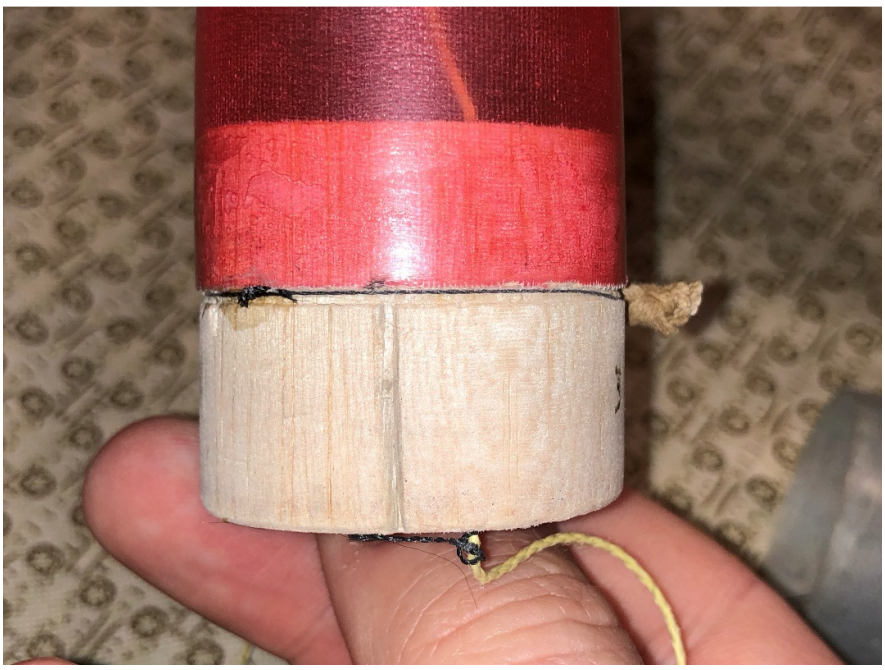
Tie the leash line to the shock cord.

Cut a burn string that is long enough to go around the shoulder and allow you tie a knot.

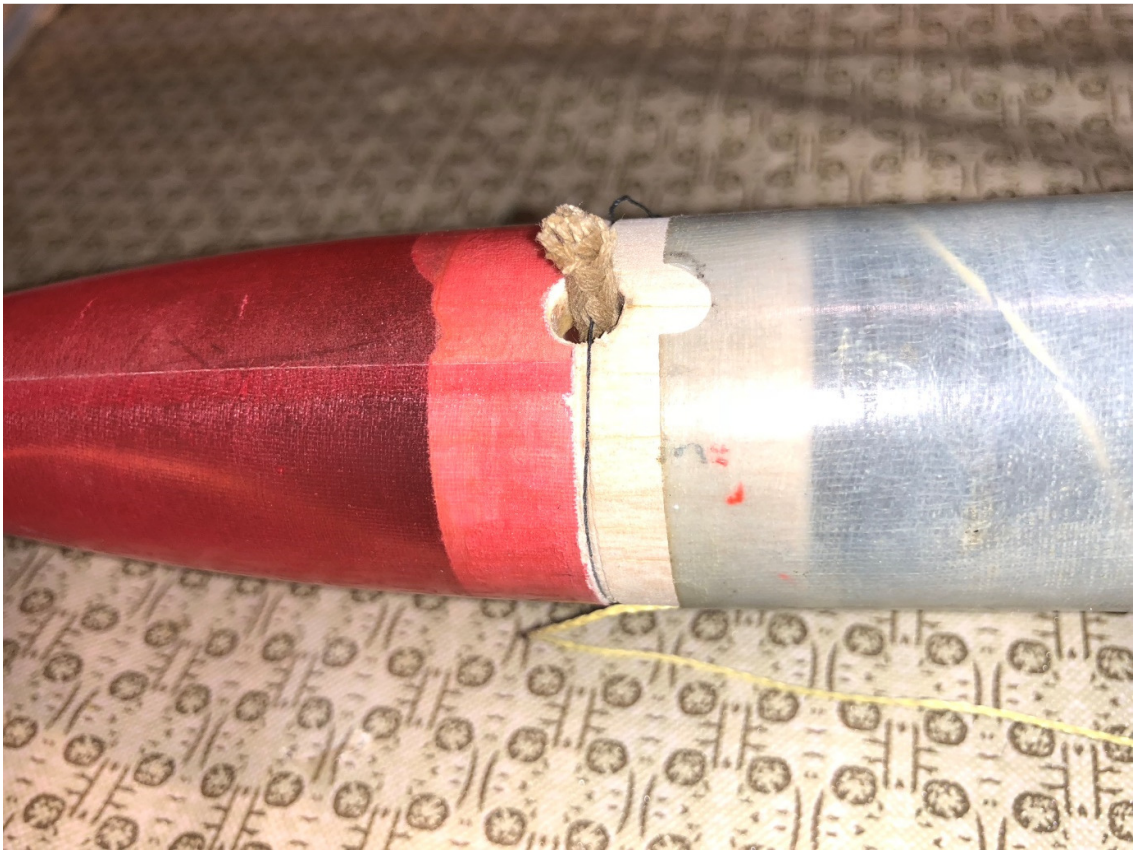
Cut a length of DT fuse for the time you want. You will probabaly have to calibrate it by burning a section and timing it. Keep in mind that as the model is under thrust, the fuse will burn slightly faster than when it is under chute.

Use a needle, thread the burn string through the DT fuse about ¼" from the end. Insert the short end of the fuse through the hole in the shoulder.

Pass the end of the burn string through the loops of the shroud lines and over the leash line. Tie a knot on the opposite side of the shoulder from the fuse, and scure with a drop of CA glue. Trim the ends of the burn thread.



Pack your chute as usual, making sure to avoid tangles. The grooves in the shoulder should allow you to keep the shock cord and shroud lines under control as you insert the shoulder into the tube. Aligh the notch in the body tube with the DT fuse and seat the cone on the model.



To fly, prep your model and get it on the pad. I recommend an electric lighter that uses a round element to light the fuse. Make sure it's lit and has a good cherry, then fly. In competition, pay attention to the queue and light the fuse either as you raise the paddel or just before. This is where your extra minute of length comes into play. Practice lighting the fuse with the model in the tower.

Launch! The model should fly with no issues- maybe a little roll from the fuse hanging off the side. Hopefully there are no tabgles and you will have a good chute. As the fuse burns down, the burn string will seperate and release the loops of the shroud lines. The leash line should hold and turn the parachute into a streamer.

Let me know if anything isn't clear or you have any questions.