S3A Dethermalizer: The Spanish Team Way

The Spanish team has been using a fuse based DT system for many years in FAI competition 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 burning DT fuse (SIC 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.

Jordi Roura has been making these systems for the team to use and has the techniques down. I am not aware of any other recovery team, so anything that helps them get models back is a plus.

The Spanish team has been using a fuse based DT system for many years in FAI competition and has had a high success rate with multiple team and individual medals over the years.

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

FUSE LONG ENOUGH FOR YOUR MAX + 1 MINUTE

NEEDLE AND THREAD

HOLE PUNCH

Tools you will need:

- Hole punch
- Needle and thread
- Fuse long enough for your max + 1 minute
- Tools
Jordi carves a hollow balsa wood shoulder 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 above where the nose cone ends to hold the burn string. Two notches are made to hold the shroud 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 to tie a knot. Cut a length of DT fuse for the time you want. You will probably have to calibrate it by burning a section and timing it. Keep in mind that 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. Trim the ends of the burn thread. Knot on the opposite side of the shoulder from the fuse, and secure with a drop of CA glue. Trim the ends of the shroud lines.
Let me know if anything isn’t clear or you have any questions.

...the parachute into a streamer.

String will separate and release the loops of the shroud lines. The leash line should hold and turn
Hoping that there are no tangles and you will have a good chute. As the fuse burns down, the burn
Launch! The model should fly with no issues—maybe a little roll from the fuse hanging off the side.

Your extra minute of length comes into play. Practice lighting the fuse with the model in the tower.

To fly, prep your model and get it on the pad. I recommend an electric lighter that uses a round...