

## F2D News - September 2007

Mark Rudner  
rudner@mit.edu

This is the US Team Trials edition of the F2D News. It's already been a couple of weeks since the Team Trials finished, but that's the way it goes. We may not be the first to break the stories for you, but at least we do break something...

For the second time in a row, the Lubbock Llano Estacado Model Airplane Club hosted the Team Trials. The effort was headed by experienced Team Trials participants Andy and Bobby Mears and Larry Driskill. These guys know what it takes to run a successful Team Trials, and have proved it once again. With so much at stake, the Team Trials is always an event on the verge of some sort of blow-up. However we made it through the weekend relatively smoothly, and by Sunday evening selected an undisputed team of 3 very capable pilots. Pretend you didn't already hear the results 3 weeks ago and hold your breath for a few seconds to get your pulse up... ok there. The team members are: Andy Mears, Richard Stubblefield, and Michael Willcox.

While things ran very smoothly for a Team Trials, that's not to say that the weekend was without controversy. I'm not going through this to complain about anyone or the job that was done, I just feel that it's instructive to bring problems out in the open so that they can be discussed and hopefully avoided in the future.

The first issue came up before the contest even started, at the pilot's meeting Friday night. This infamous "what-if" meeting has been a Team Trials tradition dating back as far as I'm aware. The question, however, is whether or not attendance is mandatory. I had the impression that it was, but without a copy of the official Team Selection Program in front of me I can't say for sure. Aside from going over various administrative details and rules interpretations, the draw is always done during this meeting (more on this later).

A problem arose when one pilot who had pre-registered for the contest wasn't present at the meeting. Nobody knew for sure whether or not he was planning to show up for the contest Saturday morning. Because he had registered and paid his money, however, the decision was to include him in the draw as a regular contestant. When he in fact didn't show up at all for the contest, his opponents in the first three rounds were given free wins. At a contest where team placement is at stake, this could be quite a boost. Incidentally, a nearly identical problem came up while I was in England last month... maybe I'm cursed.

At the time there were arguments going both ways about whether to redraw without him in the morning or to let him stand in the draw; I don't fault anyone for keeping him in, but in the future I'd like to see the no-show contestant taken out of the draw. If the contest has already started and then a pilot disappears and misses his 4th round match, that's his problem and his opponent "deserves" his free lunch. Regardless of whether or not an entry fee was paid, however, a complete no-show at the contest should probably just be thrown out from the start. For the Team Trials, my suggestion is to just make the Friday night meeting mandatory and draw those and only those pilots who are present or have made specific arrangements with the contest organizers beforehand to be included.

The second issue that came up was actually not unrelated to the first. For those who aren't familiar with the US Team Selection program, the draw is not done in the traditional random way. Instead we use something called the "Matrix Matching System," which is a completely deterministic matching system kicked off by a random seed. The whole thing always seemed somewhat pointless to me, until for some reason in a moment of epiphany this year I understood the reasons why it was originally put in place.

Historically, a lot of the Team Selection Program was laid out by Paul Smith in the late 1970s. He was a very thoughtful individual, and spent a lot of time considering how to write a rigid system that would guaranty a fair and unbiased team selection process. The best way to ensure that the contest is set up in an unbiased way is to minimize the amount of human intervention. When cards are drawn at random to determine matches, in principle it is extremely easy for someone to fiddle with the matchings. It's not that I think it would happen, but *in principle* it could happen and thus opens the door to possible spurious

accusations and arguments.

Enter “The Matrix.” In the matrix system, each contestant is assigned a random number at the pilot’s meeting before the contest starts. The contestant keeps this number throughout the competition. These numbers are then placed on a large grid and matches are determined simply by pairing up neighbors on the grid. There is a well defined procedure for shifting the columns around between contest rounds so that the neighboring pairs get mixed up and a fresh group of matchings is obtained. In Paul Smith’s vision, this grid would be displayed in public view at all times so that any interested party could walk up to it and clearly see who should be flying whom, etc. Once the wheels are set into motion with the initial draw, everything proceeds completely mechanically (like clockwork?) until finally the winners are determined.

This Matrix has certain somewhat undesirable properties, however. The most relevant is that while the algorithm is designed “to avoid repeat matches,” after a few rounds it is not guaranteed to do so. This often results in pilots flying each other more than one time in the same contest, even when other possible matchings could avoid this repeat. The significance of this problem is open to debate.

When constructed according to the prescription in the Team Selection program, the numbers of rows and columns in the Matrix are determined by the number of contestants. When adhered to, this should eliminate the possibility of repeat matches within the first three rounds of the triple elimination contest. I heard a few explanations, but for whatever reason this time we ended up with a large number of duplicate matches in the 1st and 3rd rounds and later. Probably there was some deviation from the algorithm, most likely in terms of the dimensions used to set up the Matrix.

Although it’s quirky, I actually don’t have much against the Matrix Matching System. It’s actually extremely simple to implement on the computer. By the next Team Trials, it would be cool to have some sort of laptop system set up to just handle it all on the fly and make some nice printouts to display. In fact if we’re going computerized, though, there’s no reason not to go back to the random draw method. Assuming a robust computer program is available to handle all of the matchings, again there should be no need for human intervention thus eliminating one source of possible complaints.

All in all, I felt it was a well run and successful Team Trials. A big thanks goes out to the Llano Estacado Model Club and all the others who came to help out, especially center marshal Pat Willcox and chief administrator Sheila Cranfill.