# Newsletter

## June 2019 Issue

Hi and welcome to the F5J USA Tour newsletter. For details and scores from past Tour events you can always find links from the Tour Calendar page. **In this issue** we have a Team F5J USA Update, a review of Tour scoring methods, then Part 2 of our article series on competitive F5J planes. Good flying to you!

## Tour events in June - July

Tour Calendar

**F5J in Sacramento, Davis CA, June 22-23** (Western region) Event details here. The pilots list is at 22 and includes 2019 WC team members **Oleg Golovidov** and **Jon Garber**. When you add in all the top pilots who flew in Visalia 3 weeks ago this one looks to be quite a battle. Real-time scores will be up on gliderscore.com

**ESL F5J @ Daniel Boone, Birdsboro, PA, July 6-7** (Eastern region). Event details here. Organizer and CD is **Kerry Cochrell**. They have a very good start on their pilots list including top guns from the eastern region but could use more. Still plenty of time to sign up with 2 ½ weeks to go.

**F5J on the Central California Coast, Santa Margarita CA, July 13-14** (Western region) Details here. This is being hosted by organizer **Rick Johnston,** the San Luis Obispo Flyers and the Pismo Beach Soaring Society. CD is **Sandy Smith**. This site has become a very popular western Tour stop. Don't miss it!

# Team F5J USA Update, June

by David Beach, Team F5J USA manager

Team Website

*World Championship event*: August 12-16, 2019 in Trnava, Slovakia

As I write this note we are a couple of days away from the longest day of the year and less than a couple of months from what are likely to be some very long days at the first F5J World Championship. There will be 150 pilots from 39 countries competing for spots on the podium. The flight line will have 18 lanes full of activity from 8 AM to 7 PM. We are scheduled to fly 4 days of preliminary rounds plus a day of final rounds. The excitement is building as departure day draws ever closer.

Team pilots have been busy practicing, attending contests, and scrambling to ready the planes they will fly at the contest. In addition to all the administrative stuff I've been doing a little analysis of the results from the 2018 F5J World Challenge Cup held at Trnava. As most of you are aware, strategy is a critical part of finishing at the top. Here are some of the statistics I found interesting:


- Carlo Galizia finished first in the finals with an average launch height of 34 meters. He was 10th in the prelims with an average launch of almost 86 meters.
- Only 3 of the 14 pilots in the finals posted scores for all three rounds. I'm assuming most if not all of the zeros came from landing out.
- The top 3 pilots in the finals had no 1000 point rounds -none of them took the lowest launch in any of the final rounds.
- Pavel Svoboda finished third in the finals settling for an 11:13 flight with a 25 point landing while seven of the others turned in zeros.

## Fund-raising Status

Thanks to many of you, the team has had a recent spurt of donations and they came just in time to pay some of the bills. Team uniforms are paid for and will be here soon. The hotel bill has been wired to Slovakia along with contest registration money. But we still need your help to meet our goal of covering the travel expenses. Please donate to

support the team and get a chance at winning one of our great raffle prizes. The pilots would much rather think about how high to launch and where to go instead of “how am I going to pay for my airfare to get home?”.



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Tour Info

Pilot Standings



Shirts

# F5J USA Tour Scoring Methods - A Review

Based on some recent questions we feel it's a good time to review several things about how Tour scoring works. First a review of Pilot Standings scoring, then a review of how the standings are displayed on GliderScore's smartphone scoring screens.

## Pilot Standings Scoring

For a full definition of Tour Pilot Standings scoring see this page:
http://www.f5j-usa.com/pilot-standings-scoring/

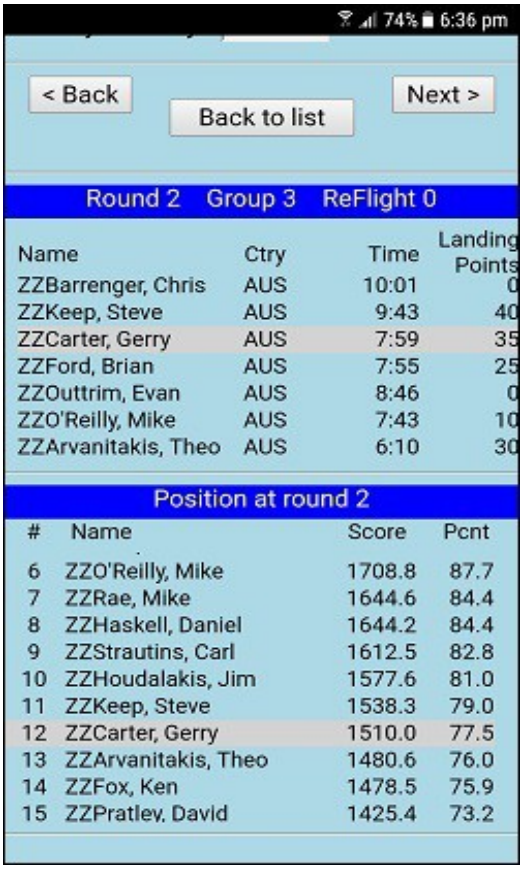
One source of occasional confusion on Tour season points is whether fly-offs have any impact on your Tour points for a given event. Short answer: yes they do. While it is true that your *normalized pilot score* is just based on your qualifying rounds the *pilot count bonus* you earn is impacted by your rank in the fly-offs. Take the following example:

Contest was a 2-day event, had 25 participants. Pilots #1-8 (in **bold**) made the fly-offs.

| | Qualifying Round Points | Pilot Count Bonus (before fly-offs) | Fly-off Ranking | Pilot Count Bonus (after fly-offs) |
|---|---|---|---|---|
| **Pilot #1 -** | **1000.0** | **25** | **4** | **22** |
| **Pilot #2 -** | **992.1** | **24** | **5** | **21** |
| **Pilot #3 -** | **979.6** | **23** | **2** | **24** |
| **Pilot #4 -** | **972.4** | **22** | **8** | **18** |
| **Pilot #5 -** | **962.1** | **21** | **3** | **23** |
| **Pilot #6 -** | **940.8** | **20** | **7** | **19** |
| **Pilot #7 -** | **926.2** | **19** | **1** | **25** |
| **Pilot #8 -** | **916.5** | **18** | **6** | **20** |
| Pilot #9 - | 872.3 | 17 | -- | 17 |
| Pilot #10 - | 866.9 | 16 | -- | 16 |
| Pilots #11-24 | ... | ... | -- | ... |
| Pilot #25 | 645.3 | 1 | -- | 1 |

So in this example Pilot #1 won the qualifying rounds with the highest normalized pilot score of 1000. If there were no fly-offs then Pilot #1 would also have earned 25 bonus points. However, because he placed 4$^{th}$ in the fly-offs his bonus was reduced to 22. Note: the bonus for pilots that did not make the fly-offs does not change. So... if you make the fly-offs your fly-off ranking matters when it comes to your bonus points!

## GliderScore's Smartphone Scoring Display




I recently received a question from **Bob McGowan** who is new to the F5J Tour this season. He was using the "Position at round xx" display at the bottom of his smartphone scoring screen at Visalia several weeks ago. He noticed that his displayed position after round 12 that day was different than when he looked again later that evening. *So the question is: why did his position change?* This is obviously important since your next flight's strategy may depend heavily on your current position.

The reason why the displayed position may be wrong has to do with when the CD/scorekeeper processes the scores entered by pilots. When a pilot enters their smartphone scores they go directly to the GliderScore (GS) server (somewhere in California I think). The scorekeeper must periodically download those scores to his laptop, check them and make any corrections, then upload them back to the GS server. Until scores are "uploaded" the position info will either not show up for the round or, if an incomplete set of scores for a round are uploaded, then the displayed positions could be wrong.

Ideally the scorekeeper will only upload back to the GS server at the very end of each round (i.e. after all groups are flown), and only after all pilots have entered their scores. The problem is that there are almost always a few pilots slow to enter their scores. So sometimes partial round scores can get uploaded. As pilots you can help by entering your scores as soon as possible. CDs/Scorekeepers can help by gently reminding pilots to enter their scores and also by delaying uploads until all scores for a round are entered.

**Final note:** the top part of the smartphone scoring screen results--the **flight group results**-- does NOT depend on any scorekeeper uploading. That display uses the raw scoring data that each pilot enters. If mistakes were later corrected by the scorekeeper then this display will later show those corrections.

Hope this helps!

## Competitive F5J planes - Part 2

Last month we ran the first installment of this article series with answers from three top F5J pilots (Mike Smith, Ali Khani, Oleg Golovidov) to our questions about competitive F5J planes. As we stated last month things are moving fast in this segment with new models coming out often. This makes it all the more challenging to make purchasing decisions.

For this second and final installment we are very fortunate to have responses from top pilots and experienced plane builders **Darwin Barrie**, **Lenny Keer**, and **Jon Garber** who is also a Team USA F5J pilot. Thanks very much gents for your inputs.

### Q&A with resellers and top F5J pilots and plane builders

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**Q1. How many planes do you need in F5J? If you were just starting out and were limited to a single F5J plane what type would you recommend? If you could buy 2 models what types would you recommend?**

**Answer from Darwin Barrie:**

After flying 3 different brands of planes over the past 5 years I've come to the conclusion that you can be very competitive with 2 planes. If only purchasing 1 plane, I recommend getting a plane as light as possible, yet capable of carrying at least 25% of the weight of the plane in ballast. If you want to be very competitive, I recommend 3 planes to include a very light model to one capable of handling significant wind. Part of the reason for recommending 3 models is that the models are very difficult to obtain. If you break a model now you are down to one with a multi month wait for the next one!!

If I was buying 2 models today?? It really comes down to 1) What is being flown in my area, and 2) What is available. There are many top models right now, Vertigo, Volo, Ultima, Plus X, Explorers and a few new ones coming out. Again, what can you get?? I personally switched to Volos because of the great performance, good availability and portability.

**Answer from Lenny Keer:**

Obviously, a pilot only <u>needs</u> a single plane to compete in F5J contests, and this is where most people start out. For a single model I would suggest a medium

weight and strength that will be pretty versatile and can be flown in most conditions. Most competitive F5J models tend to be in the 3.7M-4M size and I would try to stay in that range. When the budget allows for adding a second model that's a great time to select one of the very light layups that are truly amazing in those calm, early morning flights. Having a second model also means that you're not sitting on the sidelines if something goes wrong with your primary model.

**Answer from Jon Garber:**

Realistically you only need 2 airplanes to be competitive in F5J. If I were limited to only one airplane I would go for a 4m mid weight range airplane(50ish oz). If I were limited to 2 models I would have a 4m light aircraft (40oz) and a 4m standard layup (48-50oz)that's capable of handling ballast.

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## Q2. How much of an advantage is it to have three F5J planes ? i.e. a light (low 40oz's), a mid-weight (50-55oz), and a stronger windy plane.

**Answer from Darwin Barrie:**

Pretty much covered this above. The real advantage to having 3 planes is the ability to quickly switch planes if conditions change. A very light plane that does not get ballasted and 2 more with varying levels of ballast. I would say this is really for the ultra competitor and you can probably easily get away with 2.

**Answer from Lenny Keer:**

I'm in the process now of adding a 3rd F5J model to my contest fleet, but I think it will offer only a small advantage over having two models. I suspect that I will only choose to assemble 2 of the three models on any given day. Depending on the expected conditions, that would be either be a light and medium model, or medium and windy model.

**Answer from Jon Garber:**

It's advantageous only in the respect that you are not constantly having to make changes to one aircraft. Having a light plane allows good low level thermal handling as well as the capability of using very small light lift (you wouldn't typically ballast an airplane like this because the spar structure most likely won't handle much). Having a standard layup allows for a model with good all around performance and has the advantage of being significantly more "ballastable." A strong airplane is only useful in windy conditions and is beneficial because the increased mass dampens any turbulence caused by the windy conditions; as well the extra mass helps greatly with wind penetration.

## Q3. Why do you think we are not seeing more low-cost F5J planes in F5J USA Tour contests? (where a low cost plane kit is <$1k). Do you think there would be a significant increase in USA F5J pilots if we had more sub-$1k kits available?

**Answer from Darwin Barrie:**

I think the reason for this is that the higher priced, high performance models are in demand with an ordering wait for all of them. What advantage does a manufacturer have in making a $1000 plane? It takes just as much work to make them. I do believe that if there was a 'competitive' cheap model we would likely gain a few competitors.

**Answer from Lenny Keer:**

The current state of the art molded models -- either solid core or hollow core are made from expensive composites and are quite labor intensive to produce. Before laying up a single model the manufacturer has a large investment in designing and fabricating the molds. Most competition models are in the $2K range to purchase, which is not cheap, but also not unreasonable given the cost of production. Most seasoned pilots tend to want whichever model they feel would perform best for them and are willing to pay for it.

The difference between a $2K airframe and a $1K airframe just isn't that great when amortized over a couple of seasons of use. There are a few sub $1K models available, which tend to be open wing structure designs. While these will generally give up a bit of performance compared to the latest and greatest molded marvels, they do provide a reasonable option for someone on a tight budget. Another great option for the budget conscious is to purchase a used model. Last year's super model can often be found in good condition at a significant discount. I think this is generally the best avenue to take when starting out.

**Answer from Jon Garber:**

Simply put I believe people aren’t showing up with low cost airplanes because they tend to not be as competitive in the sense that they don’t perform nearly as well as the high dollar sailplanes. I don’t think there’d be an increase in attendance.

## Q4. What kind of performance differences have you experienced for a range of current F5J models from different vendors? e.g. penetration in wind, speed range, launching, low altitude thermal searching, at-distance turning stability, landing, maneuverability, structural strength, etc. Are there any major building differences between vendor's models?

**Answer from Darwin Barrie:**

I started with an Eagle Full House from Soaring USA. At that time it was the lightest on our field at 54 ounces. I won many contests in both ALES and F5J, including the Friday ALES in Sacramento 2 years in a row. This was a great plane that is still competitive today. I then added Explorers into the mix. I was very familiar with Explorers as they are my current planes for F3J/TD. I had everything from a light 41 ounce 3.8 Explorer to a 50 ounce 4.0.

These served me well until models specifically built for F5J planes began showing up. Specifically the Ultima was the first plane specifically designed for 5J that people were flying in my area. It flew well and was competitive. I also found it difficult to get all of my Explorers flying the same. That is always the goal so that if a quick switch is needed there is no major differences in flying characteristics to hinder performance.

In the mix, I had a Simitri. It flew quite well but was 57 ounces and did not handle the light lift as well as others.

I had been watching the Volo development. I was most impressed with the ability to break down in to a small container making it perfect for travel. I also knew that Oleg would not be so committed to a plane if it wasn't a good one. Finally in February of 2018 I was able to get my first one. It was 43 ounces and flew amazing. I immediately ordered another one. Sadly, due to a brain fart, I crashed the first one. I was back to my Explorers awaiting the 2 more Volos.

During the wait I worked with Oleg and Donatas to develop a "Windy" version capable of handling enough ballast to handle FAI wind limits. This plane came to fruition and is fantastic. Even at the low unballasted weight of 49 ounces it is capable of handling even the lightest lift and moderate winds.

Other than my Super Light Volo at 38.5 ounces, my other Volos fly almost exactly the same. And, the only real difference with the SL is that it is very nimble. I've worked to get them flying close and I'm there.

All of the current models on the market build about the same. There are subtle differences but anyone with a couple of model builds can handle them. Especially with the detailed build threads on the Internet.

**Answer from Lenny Keer:**

Over the past few years I've owned and flown a variety of F5J models, starting with converted F3J models and then moving into the specialized F5J airframes. The thing I notice is the steady improvement in models from year to year. Manufacturers are somehow finding ways to reduce model weight while still maintaining adequate strength. The recent trend seems to be toward thinner airfoils which have better wind penetration, yet are still able to work those weak, low level bubbles of lift too.

I can't say there's any major differences in building any of the current contest models, but some do have a better "fit and finish" and some manufacturers will install pushrod housings, provide pre-cut control horn slots, supply all needed hardware, etc, while others do not.

**Answer from Jon Garber:**

Just to state for the record I am sponsored by DS Composites and fly Ultima 2s. All in all the majority of the competition models tend to be very competitive with one another. In the end the major difference comes down to minor proficiencies and deficiencies over one another. For example, the Ultima 2 penetrates really well at a lower weight due to its thinned airfoil section compared to other F5J models but it suffers in climb performance in light air. If you then look at an airplane like the Explorer you can see the exact opposite, the airplane doesn't penetrate as well because it is running a thicker airfoil section but it will outclimb the Ultima because of the extra lift generated by the thicker section. That said what airplane selection comes down to is pilot preference on what capabilities they want and/or prefer.

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## Q5. What can you share regarding guidelines for using ballast in F5J? What are reasonable ballast limits* for today's ultralights, lights, and mid-weight planes? * regarding structural integrity in gusty conditions and harder-than-usual landings

**Answer from Darwin Barrie:**

I think much of this is getting to know your planes. This is another reason to find a plane and stick with it. With my Volos I can change the wind ability by 1) adding a heavier battery, 2) moving the CG forward a couple of MM or 3) Doing both. I

know what each model can do with several levels of ballast. I know how much each plane can handle with associated wind. If I know the wind is going to blow, I'll keep my Windy ballasted with one of the ballast bars that I know can handle the conditions. If I need to change it, it is quick and easy with the Volo.

Something many haven't experimented with that also plays into the equation is the amount of dihedral of the wing and specifically the tips. I have some high degree joiners that I can use in light conditions or some lower than stock joiners for wind or very gusty conditions. All have their place.

**Answer from Lenny Keer:**

I think it's important to be able to ballast any F5J model. This makes the model usable in more conditions. As the ballasted weight of my light model approaches the dry weight of my heavier model though, it makes more sense to just fly the heavier, stronger model instead. I don't bother adding less than 5-6 ounces to any model, and can't see the need for more than about a pound at most in today's F5J models.

**Answer from Jon Garber:**

I only ballast strong airplanes since the lighter models don’t absorb impacts very well. I don’t ballast light models for this reason.

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## Q6. Are there any topics about F5J motors that you would like to share as they relate to getting more performance from your F5J planes?

**Answer from Darwin Barrie:**

I think this is kind of the "black magic" topic of 5J. There are people using a variety of motors on the same airframe. I think some general data as to what is available and what is being used would be helpful. Same with ESCs. I've noticed a trend to add a higher amp ESC when it really isn't needed. With a 30 second motor run it is really hard to over tax these things.

**Answer from Lenny Keer:**

I generally strive to get the most power I can without adding excess weight. More power means that more time can be spent "sniffing" out those low level thermals before blasting up to altitude as your 30-second climb window expires. It also means the ability to push way upwind or range way out to that thermal you spotted just before launch. In short, more power gives you more options.

In addition to having plenty of power I think the durability of a power system is

very important. A damaged gearbox, bent shaft, or loose pinion gear can easily put a model out of commission for the day. Another thing that helps with durability is to use an aluminum motor mount. These are much less likely to break loose if you have a hard landing and are a great addition to a contest model.

**Answer from Jon Garber:**

You can never have too much power, even on a light plane. Nothing beats the ability to range out where you want to go.

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## Q7. Where do you see the light (low 40 oz's) versus ultralight (sub-40oz) battle headed? Do you want or expect to see manufacturers coming out with lighter and lighter models?

**Answer from Darwin Barrie:**

I really think this comes down to the consistent conditions at your primary field. At my home field in AZ light conditions prevail. So, a Super Light makes sense. My SL is 4 ounces lighter than my Light Volo. That is 10%. I feel if you can't get at least a 10% difference in weights, it isn't worth it. There is considerable difference in the SL and the Light with low level performance. The down side of the SL is that it is not very durable and is not for everybody.

We are a very competitive group in AZ. If you don't have what is working, you'll be left behind. Otherwise I would have been more than satisfied with my Volo Light.

**Answer from Lenny Keer:**

Right now I think that one of the current crop of F5J models in the low 40's is a great choice for light air and they have enough structure to be pretty durable and usable in a wide range of conditions. In contrast, I think the sub-40oz models are more of a niche model which really excels in very light air, but is more fragile and limited in it's use. There are certainly some times when these ultralights are the perfect choice, but I prefer to fly a slightly heavier, but more durable, model. The sub-40oz models are already at the FAI minimum wing loading, so the only way they can get lighter is to also get smaller and I'm not sure that is good direction to go.

**Answer from Jon Garber:**

I expect to see minimum allowable FAI wing loadings showing up very soon. There is no real battle, I believe it is an inevitability.

## Q8. What improvements would you like to see in new F5J models in the next year or two?

**Answer from Darwin Barrie:**

I think right now we have a great selection of extremely competitive models. I don't see anything that needs changing right now other than availability. I believe the trend now is to make the models much more portable following the lead of the Volo. Improved availability will help. It is even worse in a Worlds year. The average Joe gets left behind.

I do believe there will be continued improvement in motors and ESCs for 5J. This will be the greatest area of growth.

**Answer from Lenny Keer:**

The competition F5J models that we have today are amazing flying machines, and it's hard to find anything to improve. I think it's likely that the development of F5J specific airfoils and wing plans will continue, so model performance will hopefully keep improving incrementally.

**Answer from Jon Garber:**

The models are extremely good right now. Any advancement in design and performance will probably only translate to fractions of a percent in performance increase.

## Q9. Do you have any other comments on planes that would be helpful to the USA F5J community?

**Answer from Darwin Barrie:**

I recommend that everyone try to follow the build thread for their specific models and don't make any real changes. With 5J many are carrying over techniques from 3J or TD. The result is a model heavier than designed. Also, don't be influenced by sellers convincing you that you "need" something. There is no need for bearing mounted servos in 5J, there is no need for 20 gauge wiring in 5J, there is no need for a 75 amp ESC in 5J.

I see people with a Volo light, as an example, that add all this crap and end up with a 50 ounce model designed to be 43 ounces and wonder why it doesn't fly as good as "so and so's" Volo.

Use what is being used in your area. This will allow you to get help when needed. This really applies to all aspects. Radios, motors, ESCs and planes.

This is a great time to be in the hobby. Great equipment and lots of choices. Build on, Fly on!!!

**Answer from Lenny Keer:**

There are many good F5J models available today and there is not one that is "best." Some float better than others, some have better range, and some just offer a better value for the $$$ spent. Remember that the model you choose to fly is really less important than the choices you make as a pilot. When you're just starting out, any model you can get your hands on that will allow you to join the F5J fun is worth having.

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Thanks again to our Tour pilot's time and helpful contributions to this article series.

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## About the Tour's Advisory Group

This group is responsible for managing the Tour and includes the following key supporters and pioneers of USA-based F5J: Lee Wolfe, Steve Neu, Lenny Keer, Larry Jolly, Jim Monaco, David Beach, and Chris Bajorek. Each advisor brings significant experience and energy to this group. If you have suggestions or feedback feel free to contact any of us directly, or you can send an email to Chris Bajorek here.