Free Flight World Championships

Whenever the best fliers in the world gather to battle it out in Power, Wakefield, and Nordic Towline, the scene is best described as 'somethin' else.' An Israeli won Wakefield, an Italian won Power, a Dane won Nordic. And the Chinese were there, truly world-class competitors with balsa-less models. Perhaps more than any other W.C., the FF donnybrook is steeped in the things that might have been, near misses, endless heart-breaks, and stirring deeds. For seven days in October, Taft—and its famous Kitty Litter factory—was the center of the FF universe. ■ Bob Meuser

YUGOSLAVIA had offered to host the 1979 World Free Flight World Championships, and its offer had been accepted by the FAI, the organization governing international aero-sport activities. The offer was later made contingent on the exclusion of South Africa, which made the offer unacceptable. With little time for the necessary homework, the U.S. offered to host the Champs as a backup to any other country's offer. But no other offer was made, and the U.S. offer was accepted. The organizers—the Southern California Aero Team (SCAT), the National Free Flight Society (NFFS), and of course the AMA—had a tiger by the tail.

It is no easy task to provide meals, lodging, and transportation for some 600 contestants, supporters, officials, staff, and volunteer workers. The flying site, some 45 miles from the headquarters at the Bakersfield Inn, required improvements to accommodate such a mob. Arrangements for the various peripheral activities such as the opening ceremony, the awards banquet, and the First International Symposium of the NFFS, had to be made. The competition itself, played according to stringent rules, involved model processing, impounding of rubber motors, issuing standard fuel for the power models, obtaining and coordinating dozens of volunteers to handle the jobs of timekeeping, scorekeeping, crowd control, publication of results, and a host of other chores.

This was the Big League, and it made the U.S. Free Flight Champs and even the Nats seem like sand-lot games in comparison. To say that it went off without a hitch would be untrue, but there were darned few hitches, and the few that occured got unhitched in a hurry. Considering that, aside from AMA activities, the whole thing was put together by amateurs with no previous experience in running a World Champs, it stands as a tribute to American know-how, Yankee ingenuity, and the efficacy of dedicated amateurs.

Despite the great distance from most of the FAI-member nations in western Europe, participation was down only 15 to 20% from that at Champs held in Europe, largely due to lack of participation by the Iron Curtain countries for "political reasons," as Sandy Pimenoff, FAI official, put it in his speech at the awards banquet. But, for the first time, the Peoples Republic of China participated, and this was the first time China had participated in *any* international sporting competition outside the Orient in recent history! And New Zealand, because of shorter travel distance, was able to send teams whereas before their activity had been confined largely to sending models to be flown by proxy.

1979 FREE FLIGHT WORLD CHAMPIONSHIPS TAFT, CA, U.S.A.

Of course, all eyes were on the Chinese, for they were the Great Unknown. Would they turn up with exotic and perhaps antiquated creations of bamboo and rice paper? Or ultra-sophisticated creations concocted from boron fiber, epoxy resins, and plastic films? Something in between was the way it turned out, with a few innovations of their own that could be considered advances of the state of the art. Clearly, they had received all of the western-world aeromodeling publications, and were well aware of the state of the art. From it they had extracted what they liked, discarded what they didn't, and added their personal touch.

Their models were constructed almost entirely from a local wood called Tungs, which was fine-grained, with a density less than spruce, and equal to only the hardest balsa. Their tissue was like the stuff we know, but rather rough. Balsa was used only for diagonal ribs on a few models according to the interpreter, but seemed to have somewhat wider application, possibly for trailing edges and wing-tip fairings, as their models were not overweight. The rubber used to propel their Wakefield models was made in China, and seemed to be roughly equal to that with which we are more familiar, although they used a larger number of strands of smaller cross-section than we are used to. Their made-in-China clockwork timers were more like the German Seelig timers than the made-in-Japan timers we see here. Their Wakefield models were equipped with timer-operated linear cams to adjust the tailplane incidence angle continuously during the initial burst of power. While they used no sophisticated thermal-detecting methods, they clearly knew how to find thermals: they were the only team to post all maxes in the first round of the towline glider event, and their single power flier, Qinfei, made it into the fly-off rounds and wound up in sixth place.

Glider

Flying Per Grunnet's towline glider, Thomas Koster took a first-place trophy home to Denmark for his third time. Noted name in Power.

The victorious U.S. towline glider team makes it no secret they are Number One. L to R: Jim Wilson, Lee Hines, and Jim Walters.

Per Qvarnstrom of Sweden took second in the towline glider event.

Jim Wilson tunes his fourth-place model with an assist from Matt Gewain. Jim's ship was one of the few straight-dihedral models in the meet.

Heikki Tahkapaa of Finland captured fifth place in towline glider.

Walter Haller of Switzerland tied for fifth place in towline glider.

Aeromodeling is a recognized sport in China, and is taught in the schools. Several hundred participated in the team-selection process for the World Champs teams, with regional semi-finals, and a finals in Peking. The average age was 38, and all were married and are raising a couple of kids. The team members came from all walks of life, from "professionals" to "workers." (We'll ignore the connotation that professionals don't work!) They are *not* the round-faced, ever-happy, always smiling peasants depicted in some of their official literature; all in all, they seemed to be about the same sort of folks as the rest of us.

The site, near the oil town of Taft, wasn't perfect, but it was adequate, and the weather was about what could have been expected as "most probable" from the statistics of the last 10 years. Maximum temperature did not exceed 90°F; that was on the first day of competition, and it was lower each day thereafter. There was no rain, and only moderate winds.

It is a funny game we play, but one that is typical of many sports. Perfection is the norm. Launching into well-chosen thermals, flight after flight, is scarcely worthy of mention. It is merely the minor deviations from perfection that separate the heros from those who also ran. This report then, necessarily, is in the main a chronicle of goof-ups.

Nordic A/2 Towline Glider (F1A): Without engine or rubber motor, towline glider models seem deceptively simple, and perhaps they were a decade ago. But the invention of circle towing and

Wakefield

Israeli flier Giora Hertsberg employed unique tail with slotted flap on his Wakefield jobs.

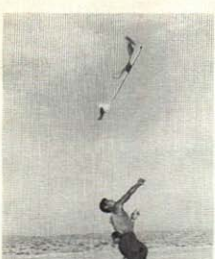
Hot sun on exposed rubber can cause breakage, so it was common sight to see helpers shading rubber in many ways. Here, Roger Simpson shades for Walt Ghio as he packs turns into Wakefield.

Austrian Hans Zachallmal had second place in Wakefield but was disqualified when model was found to be a fraction of a gram underweight. Tough break, probably caused by heat removing moisture.

Israeli flier Itzhak Ben-Itzhak winds for his winning Wakefield flight while helper shades with what looks like a glider wing in its envelope.

Canadian Dan O'Grady's Wakefield threw a prop blade during second fly-off round, but he still managed second place.

U.S. team's Bob Piserchio winds his White-designed Wakefield "Twin Fin" model, its rubber well-shaded against the low slanting sun.



Flier from the Peoples Republic of China shows that the Western nations haven't cornered the market on free flight skill. Note tail design.

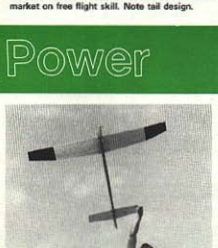
zoom launches by the Russians, and their subsequent development throughout the world, has changed all that. Trick mechanisms are used to actuate the rudder, and sometimes the horizontal tail, into three or four positions corresponding to the different phases of towing, launching, and gliding. Wings must be strong enough to support a load of 10 to 15 times the weight of the model during the zoom launch, and may have over 500 parts. The physical skill and stamina required are a combination of those of a middle distance runner and a dancer; one expert recommends jogging backwards as part of the physical conditioning routine!

The U.S. Team consisted of Jim Wilson, Lee Hines, and Jim Walters. Wilson and Hines have been doing extremely well in local competition, but have not previously participated in a World Champs. The third member of the team was to have been Bob Isaacson, making it a 100% Southern California team, but he dropped out because of a knee injury. Walters, who took fourth place in our team-selection finals, has participated in two previous World Champs, and scored highest among the U.S. competitors on both occasions.

Starting at 7:55 under an overcast sky, Round One opened with dead air that was of little help to the gliders, few of which can make three-minute max flights without some help from thermals. Jim Walters, designated by Team Manager Dick

Australian Paul VanLeuven prepares for his last flyoff round. Mechanical problems prevented winding motor fully. He took 2nd pl.

Power



Roger Simpson gets off perfect launch in Power.

Carl Bogart's model had inner wing panels partially covered with hard aluminum foil.

Galbreath waits for thermal detectors to say, "Now!" Slightly oversized engine, as manufactured, disqualified him from third place.

Myers to fly first, started towing 19 minutes after the start of the round. There followed what must have been the most hectic 12 minutes in model aviation history, as Walters ran from one side or one end of the starting line to the other, half followed and half lead by an entourage of helpers carrying thermistor-type thermal detectors, throwing cat-tail "fluffies" into the air, cranking away at bubble generators, and watching the performance of other models. With less than half of the round remaining for Wilson and Hines to make their flights, Walters zoomed his model off the towline into what seemed like marginally good air. But his model failed to find significant lift, stalled a bit as it entered the turbulent air near the ground, and turned in a flight time of 2:49, 11 sec. short of a max.

Two minutes later Hines started towing in weather that was rapidly improving, and in another two minutes he zoomed his model off, and made a max with 24 sec. to spare. Wilson started towing immediately, but lift was still not all that easy to find. After towing for 15 min. he went off for a flight that exceeded the 3-min. max by a mere 0.2 sec! Only 17 of the field of 65 maxed on that first round, and only one team—the Chinese —made all maxes.

At the end of Round One the U.S. team was in third place behind China and Denmark. Walters' chance for a crack at the individual world championship was already past, for there would certainly be many who would max in all seven rounds, but that didn't prevent him from doing his best. With an esprit de corps second to no other team's, the U.S. team made all maxes for the following six rounds. A Chinese model spun in in Round Two, putting the U.S. team in second place, and in the fourth round one of the Danes dropped 37 sec. putting the U.S. team in

Italy's Mario Rocca flew superbly crafted model with geodetic ribs, Italian style, to first place. Used new A.D. 15 engine.

Former World Champ Albert Dall'Oglio had plenty to smile about. His home-made engine was used by the winning Power flier Mario Rocca.

China's single Power flier, Qinfei, made it into the fly-offs where he took sixth place.

first place where it was to remain, giving the U.S. its first team World Championship since 1965 when it tied with Italy for first in the Power event, and its first World Championship ever in the towline glider event.

Into the flyoff rounds with perfect scores went Wilson and Hines of the U.S., Per Grunnet's model proxy-flown by twice-world-champ, Thomas Koster of Denmark, Per Qvarnstrom of Sweden, Heikki Tunkapas of Finland, Walter Haller of Switzerland, Gottfried Zachof Austria, Herbert Schmidt of West Germany, and Pieter DeBoer of the Netherlands.

At 4:45, with the weather deteriorating rapidly as the sun plunged toward the crest of the Coast Range, the first fly-off round started. Schmidt and DeBoer missed lift, and failed to max. The remaining seven all made the required 5-min. max flights in the second fly-off round. The third would be the last.

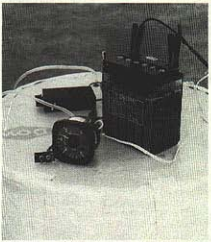
Qvarnstrom launched, and Hines was off a minute later into what he felt was lift, not very good lift, but perhaps the best that might come along. Both models sank as they passed over the grassy area a quarter mile downwind of the launch line, turning in scores of 3:33 and 3:22, respectively. Koster launched two minutes after Hines, but from a point considerably upwind. His model had gained a bit of altitude by the time it reached the sinking air over the grassy area, and continued to the upward slope beyond, finally coming to rest with a flight time of 4:11. The other three trailed far behind. And so Koster, albeit with Per Grunnet's model, became the first three-time, three-event World Champs winner in history.

Wakefield Rubber Power (F1B): The U.S. team consisted of Bob White, Bob Piserchio, and Walt Ghio. Piserchio and Ghio had been on the 1977 team; White had placed second, third and fifth at previous World Champs, and has a list of major wins in the U.S. as long as your arm.

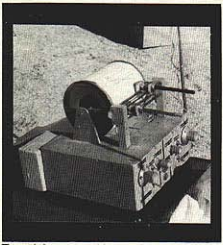
The first flight was relatively uneventful; two-thirds of the fliers made their 3-min. maxes, including the U.S. team. One who did not max was Reiner Hofsass of Germany, who was flying his high-aspect-ratio Espadon with a solid-balsa wing. The high aspect ratio wing permits wash-in of the wing on the outside of the glide circle, which transforms what would normally be a stall into a swooping climb. The humidity change had

Miscellaneous

Home-made transits were used to measure altitude of models by NFFS Tech Task Force headed by Fred Pearce and Rol Anderson.



Variometer with sonic output signal, sensitive to small changes in air pressure, was used by Argentinian team as thermal-detection aid.

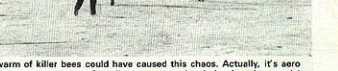


Thermal detector used by Israeli team had one thermistor 50 yards upwind, another at recorder, and home-brew two-pen drum recorder.

Gail Gewain's mini-computer churned out round-by-round results within minutes of the end of each round.

U.S. Team Manager Dick Myers received momento signed by team members.

Paul MacCready of man-power flight fame, chatting with Carl Goldberg, was NFFS luncheon speaker. Paul's first model was Carl's Sailplane.



Swarm of killer bees could have caused this chaos. Actually, it's aero science run rampant as Canadian supporters thrash the air under a model in the hope of triggering a thermal. Meuser thought it eased tension.

caused the wing warp to reverse, and the model stalled. After drastic readjustment, including the addition of nearly a quarter-inch of wing incidence, the model began to perform rather well.

All went well with the U.S. team until the third round when Ghio's model spun into the ground under power for a score of 30 sec. The timer-operated automatic rudder control, which normally flips the rudder into the glide position when the motor is unwound, was actuated too early. And White apparently flew a bit too early for the thermal and dropped 37 sec. Piserchio dropped 51 sec. in the fifth round.

But not all of the other teams were doing too well either. Going into Round Seven the U.S. team was in fifth place, and had the team maxed in Round Seven, the U.S. team would have taken third place, which is not too shabby with 22 countries entered. But Ghio missed a thermal, and the U.S. dropped to sixth place.

Only six had perfect scores at the end of Round Seven: Itzhak Ben-Itzhak of Israel, at age 27 by far the youngest of the bunch; Paul VanLeuven of Australia, Dan O'Grady of Canada, Paul Lagan of New Zealand, Ron Pollard of England, and Hans Zachallmel of Austria. Lagan and Pollard dropped out in the first flyoff. O'Grady threw a prop blade in the second, and failed to find lift on his second attempt using his back-up model. And so there were only three fliers going into the third round, which was to be the last.

VanLeuven had gotten half of a broken motor stuck in his twin-rudder model on a previous round, and was using his back-up model. Mechanical difficulties made it impossible for him to wind the motor fully. Both Zachallmel and the New Zealander flew but did not make the required 6-min. The young Israeli broke a motor and was the last to fly. Finally, with only minutes to spare, he launched, and there was almost immediate applause from the crowd, for it was apparent that the model was going well. Cheers again rose when his model, still with good altitude, passed Zachallmel's score, and the 50-year-old Wakefield Trophy was to be his. To cap the climax, his model was still going well, and made the six-min. max.

But what is this? O'Grady, the Canadian

THE RULES OF PLAY

The rules and procedures are complex, but briefly it works like this: All models must comply with stringent rules regarding weight, wing area, engine displacement, and rubber-motor weight. Each country has up to three contestants entered in each event. The "preliminaries" consist of seven rounds, each of a one-hour period, during which all members of a team must fly, or be scored zero. Each contestant is allowed two attempts to put up an official flight, and there are complex rules regarding what counts as an attempt. Models are scored for flight duration, but anything over 3 min. is scored as 3 min. Contestants equip their models with fuse or clockwork devices to bring them down quickly after 3 min. in order to ease the problem of retrieving the models; otherwise they might stay up for hours and land in Los Angeles.

By the end of the seven regular rounds, it is exceptional for any team to have made 3-min. "maxes" on all flights, and so team scores are reckoned according to the score at the end of the seven rounds. In cases of ties, the scores made in the following fly-off rounds are considered. But it is typical for up to 15 or 20 individuals in each event, out of a field of 60 to 80, to achieve perfect scores for the seven rounds. And so the final placing of individuals is determined by fly-off rounds.

In the fly-offs, the contestants participate as individuals rather than as teams. In each fly-off round, a contestant must get his model airborne within a specified 15-min. period, and there is 15-min. period between rounds for retrieving the model and preparations for the next round. The max for each fly-off is increased by one minute over the max for the previous round.

With the weather deteriorating as sundown approaches, thereby decreasing the chances for a modeler launching his models into upward-moving thermals, and with the max increasing by a minute for each round, the flying doesn't go on for long. At the 1979 World Champs, the final standing was determined in the third fly-off round in all three events, as not more than one contestant achieved the required 6-min. max in that round.

Nordic A-2 (F1A) World Championships—Individual Results

Pl.	Contestant	Team	Rd. 1-7	Rd. 8	Rd. 9	Rd. 10	Total
1	Grunnet (P/Koster)	Denmark	1260	240	300	251	2051
2	Per Ovarnstrom	Sweden	1260	240	300	213	2013
3	**Lee Hinns**	**U.S.A.**	**1260**	**240**	**300**	**202**	**2002**
4	**Jim Wilson**	**U.S.A.**	**1260**	**240**	**300**	**130**	**1930**
5	Heikki Tahkaoaa	Finland	1260	240	300	102	1902
6	Walter Haller	Switzerland	1260	240	300	102	1902
7	Gottfried Zach	Austria	1260	240	300	51	1851
8	Herbert Schmidt	W. Germany	1260	200			1460
9	Pieter DeBoer	Netherlands	1260	162			1422
		Rd. 1	Rd. 2	Rd. 3	Rd. 4	Rd. 5	Rd. 6	Rd. 7	Total
10	Kimmo Kulmakko	Finland	174	180	180	180	180	180	180	1254
14	**Jim Walters**	**U.S.A.**	169	180	180	180	180	180	180	1249

Team Results: 1. U.S.A.—3769 2. Netherlands—3759 3. Finland—3735
4. Switzerland—3704 5. Denmark—3663

Wakefield (F1B) World Championships—Individual Results

Pl.	Contestant	Team	Rd. 1-7	Rd. 8	Rd. 9	Rd.10	Total
1	Itzhak Ben-Itzhak	Israel	1260	240	300	360	2160
2	Paul VanLeuven	Australia	1260	240	300	124	1924
3	Dan O'Grady	Canada	1260	240	284		1784
4	Paul Lagan	N. Zealand	1260	237			1497
5	R. Pollard	G. Britain	1260	155			1415
		Rd. 1	Rd. 2	Rd. 3	Rd. 4	Rd. 5	Rd. 6	Rd. 7	Total
6	Giovanni Cassi	Italy	180	180	179	180	180	180	180	1259
7	Jacques Petiot	France	180	180	167	180	180	180	167	1234
8	Herbert Chmelik	Austria	151	180	180	180	180	180	180	1231
9	Jens Kristensen	Denmark	180	180	180	180	180	180	149	1229
10	Peter Rasmussjen	Denmark	180	180	180	180	180	180	180	1229
12	**Robert White**	**U.S.A.**	180	180	133	180	180	180	180	1213
13	**Robert Piserchio**	**U.S.A.**	180	180	180	180	129	180	180	1209
46	**Walt Ghio**	**U.S.A.**	180	180	30	180	180	180	113	1043

Team Results: 1. Italy—3655 2. Denmark—3625 3. Gt. Britain—3502
4. Argentina—3498 5. France—3494 6. U.S.A.—3465

FAI Power (F1C) World Championships—Individual Results

Pl.	Contestant	Team	Rd. 1-7	Rd. 8	Rd. 9	Rd. 10	Total
1	Mario Rocca	Italy	1260	240	300	360	2160
2	Keiichi Kibiki	Japan	1260	240	300	345	2145
3	Michel Iribarne	France	1260	240	300	234	2034
4	Martti Keinanen	Finland	1360	240	300	222	2022
5	Frank Schiachta	Canada	1260	240	300	198	1998
6	G. Quinfel	PR China	1260	240	300	154	1954
7	Denis Ferrerro	France	1260	240	217		1717
8	Reinhard Truppe	Austria	1260	240	175		1675
		Rd. 1	Rd. 2	Rd. 3	Rd. 4	Rd. 5	Rd. 6	Rd. 7	Total
9	Pete Harris	Gt. Britain	180	180	180	180	180	180	180	1260
10	Jan-Olle Akesson	Sweden	180	180	173	180	180	180	180	1253
22	**Roger Simpson**	**U.S.A.**	180	180	131	180	180	180	180	1211
29	**Carl Bogart**	**U.S.A.**	180	180	180	180	180	96	180	1176
46	**Doug Galbreath**	**U.S.A.**	0	0	0	0	0	0	0	0

Team Results: 1. France—3758 2. Canada—3695 3. Sweden—3654
4. Gt. Britain—3623 5. Denmark—3613 13. U.S.A.—2387

Allan Wells of England processed some 50 Wakefield rubber motors. The heat took its toll of broken motors; some fliers ran short.

whose model had lost a prop blade in the previous round, was frantically preparing his model for a flight. The timekeeper raised the gun to signal the end of the round, but it misfired! He reloaded the gun, O'Grady launched, and a second later the gun was fired. On the previous round, O'Grady's model had maxed, even with the one prop blade. If it could be determined that the prop blade flew off before the model was actually launched, perhaps the flight should have counted. But it turned out that the model was underweight without the one prop blade, and so the previous score stood.

But it wasn't over yet. After each event has ended, the top-placing models are checked for compliance with the rules. Zachallmel's model was found to be underweight by about half a gram; the low humidity had apparently dried out the wood since the model was weighed in three days earlier. Scales were checked andre-checked using master weights accurate to a few thousandths of a gram, but even casting any possible small error in favor of the contestant, his model was underweight and was disqualified, and so Van-Leuven and O'Grady were moved into the second and third positions.

Power (F1C): The U.S. team consisted of Doug Galbreath, Roger Simpson, and Carl Bogart. Doug, whose print shop produced the official program for the Champs, and all of the NFFS publications, was placed sixth at the 1967 World Champs, and third in 1963. Roger and his brother, Reid, have been strong in Power for many years, and regularly fly with Doug, as they all live in the Sacramento area. When I talked to Doug a few weeks before the Champs he said, "Roger is *really* ready; he's going to do it!" Bogart showed the hometown lads what it was all about when he was the only flier to max out at our team selection finals a year ago. Our team was *strong!* But, then, so were others; Germany, for example, had *two* ex-World Champs on its roster.

Former World Champ Franz Baumann of West Germany was first off a few minutes after the starting gun and maxed. The model flown by Thomas Koster of Denmark, winner of the 1977 World Champs, climbed straight up. But when the engine cut, the model came down tail first, and finally recovered after losing half its original altitude, and failed to make the required 3-minute max. Galbreath's model climbed to a height measured to be 565 feet by the Technical Project crew during the engine's 7-sec. run, made a near perfect transition into its glide circle, made only 1½ turns in its 3-min. glide, dethermalized, and was caught by Doug's helper Ken Oliver only 50 ft. from the launch point. The other two U.S. team members, Roger Simpson and Carl Bogart maxed uneventfully. With no strong thermals, only 18 of the 46 contestants made max flights, whereas in later rounds, 30 maxes would be more typical. Of those 18, only 9 would survive the following six rounds to participate in the fly-offs. The French, Canadian, and U.S. teams were the only ones to have all members max on the first round.

The second round was uneventful for the U.S. team; again all three members maxed. In the third round, Simpson made a normal climb and transition, but then it became apparent that the engine was still running, ticking away at a very low rpm. Bogart had maxed earlier, Galbreath flew and maxed while Simpson prepared a second model. Time was running out on Simpson. Launching a minute before the round's end, there was little opportunity to be choosy about thermals. Roger, flying his back-up model, missed a max by 49 sec. The Canadian and French teams had missed maxes on the third round, too. The order of team scores was France, Canada, and U.S.A., and would remain that way through Round 5.

By the start of the fourth round, the previous overcast had all but cleared, and the thermals were becoming strong. From then on, two-thirds of the flights would be maxes. Simpson was again flying his number one model. The flying

Continued on page 122

Irwin about the total number of engines he produced. The total of "about a million" didn't seem quite as surprising as the number of O & R .23s made. Of the total, 800,000 were .23s! That leaves 200,000 for all the rest combined: .19s, .60s, .29s, .33s, Gold Seals and Miniatures. Wow! Incidentally, Mark Fechner, who specializes in the repair and service of all O & R engines, is planning to produce a batch of the first Ohlsson engine. More about this later.

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SAFE FLYING IS NO ACCIDENT

Free Flight W.C./Meuser

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order was changed by the U.S. Team Manager, Dick Myers, with Simpson flying last in order to give Galbreath and Bogart, who could possibly make it into the fly-offs, a little more time if they needed it. Our team maxed in Rounds 4 and 5. Koster, by then, was making good climb-to-glide transitions despite his precarious straight-up climb.

In Round 6 Galbreath flew with his usual near-perfect form. Bogart flew, but had an engine over-run. Simpson fueled up for a flight, but when Bogart again had his model ready, the Team Manager put him in ahead of Simpson. When the air looked good, he started his engine, but on the advice of Walt Gibo, who was manning the thermal detector, shut down. Again when the air looked good he fired up and launched, but had a poor powered-flight pattern, and scored only 1:36, dropping the U.S. to fourth place, where it was to remain.

Round 7 was uneventful for the U.S. team; all maxed. Former World Champ Hans Seelig of Germany, with all maxes thus far, started his engine, but it quit, and before he could re-start the thermal had passed, and so he again played his cautious waiting game. Finally he started his engine and again it quit, but he re-started it immediately and launched. The model nearly looped, finally settled into its glide pattern at half-normal altitude, got little help from mother nature, and he lost his chance to be Champ again.

Nine contestants had perfect scores through Round 7: U.S.'s Doug Galbreath, Mario Rocca of Italy, Keiiche Kibiki of Japan, Qinfei of China, Denis Ferrero and Michel Iribarne of France, Martti Keinanen of Finland, Frank Schlachta of Canada, and Reinhard Truppe of Austria. All made their 4-min. maxes on the first flyoff, even though Qinfei's model nearly looped, and Ferrero's beautiful continuous-dihedral model's engine power sagged.

In what was to be the last fly-off, Austria and Japan went off immediately. Soon after, the Canadian went off with a poor power pattern, and at about the same time Rocca went off with his characteristic perfect flight pattern, the model stalling just a bit in the first glide turn as was its habit. The others followed later. The Italian was the only one to max; Kibiki and Galbreath posted scores of 5:45 and 4:18 for second and third places.

But again, the contest wasn't over quite yet. Models were checked, and Galbreath's engine displacement was found to be over the 2.5 cc limit by a microscopic amount. The measuring equipment was checked and re-checked, and finally the engine was taken to an independent lab for an additional check. Still over; there was little choice but to disqualify Galbreath. And ironically, with Galbreath's flight scores set to zero, the U.S. team was also placed below that of a dozen countries whose engines had not been checked!

It is indeed tough to disqualify two outstanding performances for essentially trivial deviations from the rules, which could not have affected the performance of the models in the least amount. True, Zachallmel perhaps should not have built his model so close to the edge, and perhaps should have figured on the low humidity drying out his model a bit, and Galbreath could have requested an engine-displacement check during processing. But who would expect a commercially-built engine, intended for a particular competition class, and not modified in a way that would affect its displacement, to be over-displaced? The rewards for the competition are supposed to be for skill at building and flying model aircraft, *not* for skill at complying with knit-picky rules. No one was happy over the decision to disqualify Zachallmel and Galbreath, least of all the runners-up who profited from those decisions. The sterile statistics will show scores of zero for the two; those who were there will know that those statistics don't tell the real story.

It is tough, to be sure. But we play a game that is played according to strict rules, and the rules must prevail. There was no question here of interpretation of the rules, as there might be for other aspects of the rules. My opinion isn't necessarily a popular one, but I don't see how those who had to make the decisions could have, in good conscience, done anything other than what they did. And I didn't notice any of them wringing their hands in glee over the decisions that had to be made.

It would be inappropriate to dwell on the performances of the competitors without at least mentioning those who made the competition possible. And although they deserve far more, we'll simply list them.

Competition Director, Bill Hartill of SCAT; Contest Administrator, Hardy Brodersen of the National Free Flight Society; Contest Manager, Bill Bogart of SCAT; the FAI Jury, chartered to adjudicate rules-book matters, headed by Sandy Pimenoff of Finland, and backed up by Ian Kaynes of England and George Xenakis of the U.S.; Event Directors Juan Livotto, Irv Aker, and Ed Carroll; Chief Timekeeper, Andy Faykun; Chief Scorekeeper Gail Gewain; Processing Director, Bob Hatschek; Proxy Coordinator, Jim Quinn; NFFS International Symposium Coordinator and Editor, Ray Harlan; NFFS Technical Task Force Director, Fred Pearce, with assistance from Dennis Mihora, Chris Matsuno, Andy Bauer, Rol Anderson, and others; NFFS Plans Book Editor, Dave Linstrum; AMA President, Earl Witt; AMA District X Vice-President, Jim Scarborough; and the AMA Headquarters staff: John Worth, Executive Director; Frank Ehling, Technical Director; Michelene Madison, FAI Activities Coordinator; and Giselle Jackson, who stayed up nights making certain that the money went to all the right places. And Matt Gewain who donated the use of his personal Apple II computer and its snazzy peripheral dot-matrix printer, and who programmed it to do the right things with the data. And many, many others.

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Angeles, a bunch of dedicated volunteers sets up a hall full of tables and begins registering models brought in from such exotic places as Vancouver, Canada; Las Vegas, Nevada; Gainesville, Florida; or Lake Havasu, Arizona. The San Diego contingent arrives in force, and old friends made through the marvelous medium of modeling share smiles, hearty handshakes, and good-natured gaiety. Cracks of, "It'll never fly!" and "Too bad there was never a real one like that!" are expected and dispensed with by rolling the eyes upward and moaning. No one ever comes away empty-handed from the Saturday scale exhibit and judging. The appreciative comments of people whose judgment you take as gospel are like Krugerrands in the pocket. Questions of how you got that particular finish or where you ever found a three-view for that plane are treasured more than all the pot-metal and