

FLY LOW, FLY FAST, TURN LEFT !

Once a year in September the fastest motor sport event takes place in Nevada, the National Championship Air Races and Airshow.

It started in 1998, when we had the nice idea to go once to the Reno Air Races. At that time we underestimated the potential danger of addiction a bit. By now, we have been there the sixth time in a row.

Scene of action is the Stead airport, a former airforce base north of Reno, Nevada, the biggest little town in the world. The airport is located at an elevation of about 5000 ft in the desert. The sometimes (at daytime) very high temperatures often make for density altitudes of 8.000 ft. Also wind speeds can be quite interesting there.

From Monday to Wednesday the qualifying takes place. Every participant tries to fly a lap as fast as possible. Mostly several airplanes are on the race course at the same time. The achieved speed determines the starting position for the first race. The participants get distributed in A-, B-, and C-heat races in every race class. This is equivalent to gold-, silver-, and bronze-class. Whoever wins a race in his class steps up to the next fastest group of competition. The actual races take place Thursday through Sunday. The single

races are divided in a way that almost every plane is in the air once per day. Therefore the 6 to 8 planes, which fit each other best in performance, fly in the same race. Highlights are the final runs in each class, the actual gold-, silver- and bronze races.



Tom Dwelle in his *Critical Mass*

Every day the program starts at 8 o'clock with the small and light weighted formula-one racers, to prevent them from being affected by the strong thermals which build up over the desert during the day. The last race of the day at about half past four is reserved for the giants of the unlimited class. In between the races of the 5 different race classes there are miscellaneous air show acts, like aerobatics, flying displays of very rare vintage planes and military demonstrations, like e.g. the Thunderbirds. The program is without respite, that's why it is quite hard to break away from the action in order to shop at the diverse booths behind the

grandstands. There you will find about everything: Next to food and drinks there are books, souvenirs and aviation accessories. If you are looking for buying a Russian MIG-fighter, you might also find it.

Huge grandstands offer great views for the spectators. For some extra money everyone who arrives not too late can buy a pit pass. This is the area where the airplanes are maintained, polished, and, if necessary, also repaired. Here you will get very close to the airplanes and from time to time one can talk to the pilots or crew members. Here are the most different individuals: mechanic-freaks, high-tech-engineers, multi-millionaires, and astronauts, pilots who fly extremely well and of course fans from all over the world.

Some attention should be paid to the static display, where numerous airplanes of all kinds are presented. Also the participants of the National Aviation Heritage Invitational, better known as the Rolls-Royce Heritage Trophy, a beauty-contest for true to original treasures of aviation history, are on display here.

Lots of interesting things are happening every day and it is advisable, not only to stay for the weekend, but to arrive earlier.



Top: Mike Brown in his highly modified Hawker Sea Fury *September Fury*

Right: *Rare Bear* at a run-up on the apron in the evening



Qualifying – The action starts

Mike Brown with *September Fury* was the first of the top favorites to present a qualifying speed. His speed was a real challenge for his competitors. His (former) Hawker Sea Fury is one of the most modified airplanes of the unlimiteds class. After having flown for a few rounds, Mike Brown applied via radio for taking his time. Everything looked and sounded perfect – at least till he passed the 6th of the 8 pylons of the race track. There, at about 800 km/h his tuned Wright R-3350 of estimated 4200 horse powers blew. Smoke and oil got into the cockpit, so that the visibility of the pilot was affected. Before long Randy Bailey approached with the second racer of the team, *September Pops*. He flew a tight formation with Mike, to help him to land safely.

When *September Fury*'s speed went below 200 mph, Mike opened his canopy to get rid of the smoke in the cockpit. To get a better visibility, he wanted to push the seat into a higher position. But he had bad luck and the seat went into the lowest possible position. Visibility was gone and Mike had to fly by instruments for a short time and in the same time he had to push the seat higher. The remaining pressure in the hydraulics after the engine failure was high enough to pull the landing gear, but it was too low to build up the normal braking

action after touchdown. Therefore the landing roll took disturbingly long – it ended in the dirt overrun.

Despite multiple effective application of Murphy's Law the first Mayday of the week fortunately ended with a successful emergency landing. It was helpful that the prop blades of this plane can be feathered even after total loss of engine oil. At most other unlimiteds the prop blades turn to low pitch without oil pressure, so that the prop acts as a giant air brake. This barred quite a few pilots from reaching the runway in an emergency before.

Instead of setting up a new record and to be the first to qualify with more than 500 mph, the first qualifying session on Monday marked the repository for one of the hottest aspirants for the victory.

Other teams were more successful. Sherman Smoot celebrated a terrific comeback with a lap of 700 km/h for the Czech Mate-team, which was regularly afflicted by defects for the last few years.

The fastest lap of the day was flown by Skip Holm in *Dago Red* at a speed of 793 km/h. His extremely tuned P-51D Mustang has been the unlimiteds champion for the last 4 years.

The Bear is back!

After some necessary repairs on the engine of *Rare Bear* during the night of Monday to Tuesday the day of the Bear was to come. During the afternoon session John Penny achieved the unlimiteds pole position with approximately 797 km/h. The audience was thrilled!

Rare Bear's comeback after some years of absence was mainly made possible by a fan-sponsoring program. Many people had donated in order to see this racing legend back in the air again. The team members had put huge amounts of uncompensated working hours into the restoration. That this paid off so well seemed to be more than fair even to the competitors.

Of course there were also some teams that had less success this Tuesday. The most spectacular Mayday of the day was called by Bud Granley, who regularly flies *Lickety Split* in the T6-class.

He had the opportunity to take the place of Gary Hubler as pilot this day and to fly the modified *Sea Fury Furius* with its giant Pratt & Whitney R-4360-engine with more than 71 liters cylinder capacity. The nick name 'corncob' is based on the fact that this radial engine has as many as 28 cylinders in 4 rows.





Unfortunately after a few nice laps a damage on the carburetor throttle controls occurred so that the engine ran on with the high amount of 40 inches of manifold pressure.

After a few quite spectacular maneuvers *Furias* was slow enough so that the pilot could deploy the gear and flaps. In the short final he stopped the engine and made a clean glider's landing. The repair of the airplane was no problem, so that it was ready for operation once more very soon.

Mike Brown brought his newest toy to Reno for the first time this year, the beautiful Grumman F7F Tigercat *Big Bossman*. Unfortunately there were not many occasions where it could be seen on the race track. After it suffered a slight damage on the left engine this rare warbird stayed on the ground for the rest of the week.



A Wildcat on the race course

Some teams used the last day of the qualifying to improve their qualifying time and with it their starting position for the race.

Other teams tried to sort out problems, which occur from time to time on these high performance air planes, like e.g. problems with radiators or flaps which wouldn't close completely.

Among others the team of *Miss America* had to deal with this problem. After the spectacular total loss last year Brent Hisey's team made it to rebuild this most famous of all race planes to race-state in 9 months. Only the paint job of the P-51D Mustang was not finished. But the race engine build by Rick Shanholtzer ran perfectly.



Tom Camp flying a FM-2 Wildcat

This Wednesday there was a one-of-a-kind sight: A true to original restored Grumman FM-2 Wildcat. Tom Camp qualified this rare WW2-Navy-Fighter with a speed of slightly higher than the demanded 300 mph for

participation in the races.

Both participating Yak-9, *Joe Tobul Special* of Sean Carrol and *Anya* of Jim Cook had their Maydays today. First a broken gasket on the joint between the prop and the Rolls-Royce-Allison-Motor was the cause. The other time a coolant pipeline failed.



Dave Morss in Jim Cook's Yak-9 *Anya*

Whoever wonders why *Anya* has got the race number 42 should read Douglas Adams' book "Hitchhiking through galaxy".



Tom Dwelle in his Critical Mass



Sherman Smoot in the fastest Yak, John an Marcia Moore's *Czech Mate*



Gentleman, you've got a Race!

This sentence could be heard for the first time on Thursday. The pilot of the pace plane which is used for a flying start, Steve Hinton, releases the unlimited racers to the race course with these words.

On Thursday, the 5 quickest of the qualification don't have to compete. All the others were divided according to their qualification times to the individual races.

Soon after start Matt Jackson in Bob Button's P-51 *Voodoo* had to give up due to a malfunctioning spraybar. Spraybars are used in order to spray liquid onto the cooler during flight. The thereby enhanced heat conductivity prevents a too quick overheating of the engine at maximum demand. After the leave of *Voodoo* the fastest group of the day consisted exclusively of Sea Furies. Tom Dwelle won with *Critical Mass* with lots of headstart as expected. Robert 'Hoot' Gibson with Mike Keenum's #99 *Riff Raff* took 2nd place. The next two racers finished within less than 3 seconds behind the former NASA chief astronaut and space shuttle commander. It can be that thrilling watching these bolides. The other races were exciting as well – since the main goal was to win the race to rise to the next higher group.

A new race record

This was the fastest day in history: For the first time a pilot flew officially faster than 500 mph. Skip Holm flew *Dago Red* to a new record with an average speed of 507,105 mph over 6 laps. Not bad for a prop plane with a piston engine. The fastest laps were even faster than 511 mph!

John Penney with Lyle Shelton's *Rare Bear* became second. In the first half of the entrance lap he was even in front. Brian Sanders with *Dreadnought* finished in third place. But a time penalty of 12 seconds for a pylon-cut (the first in his long career) put him back in 5th place. Therefore the third place was won by Tom Dwelle in *Critical Mass* in front of Gary Hubler in *Furias*.

The field was completed by Sherman Smoot in John and Marcia Moore's beautiful Yak-11 *Czech Mate*. The plane was tuned up to about 3.000 horse powers with an R-2800-double radial engine, a different stabiliser and doesn't have much



Skip Holm at the controls of Terry Bland's P-51D Mustang *Dago Red*

in common with the former Eastern block trainer any more. Later on it showed that *Czech Mate* might have been much faster.

Some photographs revealed that there was a problem with the landing flaps. They did not stay straight in the wings under the pressure of about 4 G in the turns. They moved 3 to 5 cm downwards. Sherman felt the consequences, but was not aware of the cause since the flaps of the Yak can not be seen from the pilot seat.

The sound mix of the planes in this race was simply indescribable. The engines sound totally different at this extreme tuning and with the 160 octane race fuel they are powered with compared to the sound at the European air shows. The impression of speed and sound is truly overwhelming.

Also the silver race was thrilling. 'Hoot' Gibson took the lead in *Riff Raff* for a long time in front of Steward Dawson in his *Spirit of Texas*, but he could not keep the faster plane behind him till the finish. Nelson Ezell was close behind in Howard Pardue's Race #66 *Fury*. Howard took part in this race as well and took the 6th place in his F8F-1 Bearcat.

In the bronze race Brent Hisey would have liked to be real fast after the problem with the landing flaps seemed to be solved. But, the day before *Voodoo* could not take part in the race and was therefore dismantled from the silver class and was now in the same class as *Miss America*. Therefore Brent did not have to push it since it was obvious that Matt Jackson in the more modified *Voodoo* would be much faster. *Voodoo* won the race with a speed

advance of 50 mph and could raise to the silver class again for the next race. But the second place for *Miss America* was adequate to take the leap for the next fastest class because Jimmy Leeward could not start at this race with his beautifully polished Mustang *Cloud Dancer*.

The Day before

During the night the engine of *Rare Bear* got two new cylinders and the landing flap drive of *Czech Mate* was repaired. Now the Saturday gold race participant field looked very good with a Mustang, a Bearcat, two Sea Furies with corncob engines and two Sea Furies with R-3350-engines and a Yak-11. Unfortunately Brian Sanders with *Dreadnought* could not participate, because metal grit was found in the engine oil. Nobody wanted to push the engine too hard. Everything should stay O.K. for the important race on Sunday. Therefore the gold race finished in the order of the start configuration.

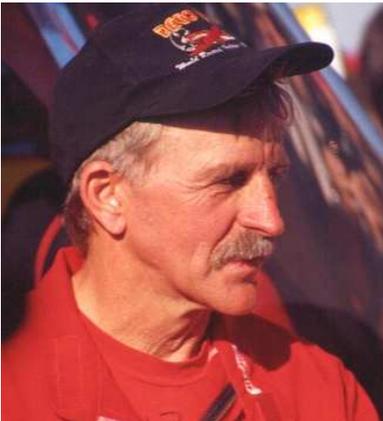
In the silver race *Miss America* lost its rudder trim flap at top speed. Brent Hisey quit the race after four finished laps, but he kept the last starting position for the Sunday silver race. Matt Jackson in *Voodoo* won the race in front of 'Hoot' Gibson in *Riff Raff*. Since *Dreadnought* had the engine problems both *Voodoo* and *Riff Raff* mounted to the gold class.

After a substantial nightly repair Ron Buccarelli could fly in the bronze race. He took care of his Mustang and took the last place. At least *Precious Metal* with its Rolls-Royce-Griffon-Motor and its beautiful sound and the two contra-rotating props was back in the race again.

The final countdown

Sunday is the day of the final runs. The first race was the bronze race, which was won by Ron Buccarelli in *Precious Metal* in front of Jimmy Leeward with *Cloud Dancer*. Ron was the fastest bronze winner ever with a speed of 407.2 mph. That speed would have been fast enough for the third place in the silver race. Jimmy flew very low and precise as always and the enormous spectator crowd was extremely pleased.

Just in time for the final heats *September Pops* got into top condition again after she suffered from serious engine problems during the week. Randy Bailey won by a narrow margin of 0.2 seconds ahead of *Miss America*. As a winner he had the choice to forgo from the title and take part in the gold race instead. He took this option and therefore Brent Hisey with *Miss America* was announced to be the silver



Unlimited Gold Champion Skip Holm

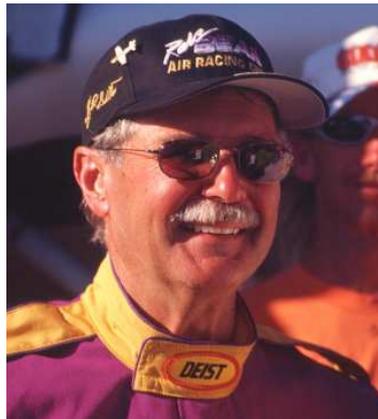
race champion. A remarkable success after a terrific team work that hardly anybody would have thought to be possible after the crash last year.

The highlight of the week and the last race of the season is the gold race of the unlimiteds. *Rare Bear's* engine was not giving the full hoped for power; therefore Skip Holm could fly *Dago Red* to a victory again.

The hard-fought third place was won by Tom Dwelle. His *Sea Fury Critical Mass* used to be a target-tow stationed in Lübeck, Germany, in former times. Shortly after him Sherman Smoot reached the finish line. According to his statement

Czech Mate could have been even faster if he had just pushed it. A little angel and a little devil were sitting on his shoulders whispering their suggestions into his ear....But after the bad luck they had for the last years the fourth place was a great success. Behind *Czech Mate Furius*, *Spirit of Texas* und *Riff Raff* followed – all with distinct power enhancements compared to the preceding years.

September Pops also reached the finish line, so that Mike Brown's team was happy to have achieved at least one gold finish after the failure of both other planes. But there was one plane that had problems: A major engine failure caused the last Mayday of the season for Matt Jackson in *Voodoo*. The landing was safe, but unfortunately Bob Button's team had bad luck once again. Victory and defeat are



The second winner: John Penney

very close to each other in this sport. But that's racing.

We do not have enough space here to talk about all classes in great detail, but at least the following highlights shall be mentioned:

The formula one gold race was won by Gary Hubler, with *Mariah* who was also the fastest one in the training sessions with 420 km/h. Gary flew apart from his own small race plane also one of the largest unlimited's planes, *Furius*. His race week was not only extremely successful, but probably also quite diversified.

In former times the upper and lower wings

of the biplanes were allowed to differ quite substantially in size. This was changed this year. The changes in rules lead among other things, to a redesign of Tom Aberle's *Phantom*. From the beginning the airplane was fast and Tom won the qualifying with a speed of about 356 km/h. He also won the race on Friday. But both times he finished with delaminated propeller blade tips of his carbon prop. Unfortunately he was not able to take part in the final run so that David Rose in *Frightful* had lost his hardest competitor. But David's victory in the gold race was not that easy. During the last lap his engine started to decompose. *Frightful* finished first followed by a big trail of smoke. During the adjacent glider's landing the runway was a bit too short and the plane flipped over. Fortunately the winning pilot was not hurt and the damage of the plane was relatively small.

In the always very exciting T-6-class Mary Dilda achieved pole position. With her *Two Of Hearts* she reached a speed of nearly 385 km/h. During the very fast race on Friday the champion-to-be Nick Macy took the lead of Mary in his black *Six-Cat*. After Mary had to drop out of the Saturday race with a Mayday due to a technical defect, she had to take the last starting position for the gold race. But after a terrific race *Two Of Hearts* finally reached the second place.

Mary Dilda achieved an even better result in the jet class. She flew *Heartless*, an L-39 in the colours of the Northern-Lights aerobatic team. Mary won all four races of the event. Jimmy Leeward also participated in two classes. He was even faster with his mustang on the second place of the bronze final of the unlimiteds than with the L-39 Albatross in the jet race.

The sport's class was dominated by Darryll Grenamyer and his red *Lancair Legacy*. He reached a speed of 560 km/h! This is not a misprint but his average speed with a kit plane on the 10 km oval course. But the high power demand took its toll on his boxer engine. In the Saturday race the engine broke so completely, that the former unlimiteds champion had to practise gliding. During the night among other things all 6 cylinders and the pistons and rods were changed. The reward of the nightly work was the win of the final gold race.

The National Championship Air Races are flown in 6 totally different airplane classes:

Formula One

These planes have to have a minimum empty weight of 226.8 kg and a wing area of 6.132 m². Weight and size of all major parts of their O-200-engines have to match the usual general aviation parts. Also a fixed gear and prop are mandatory. The Reno race course has a length of 4.828 km. Thereby speeds of more than 400 km/h are reached.

Biplane

The 4 cylinder-4 stroke- engines of the biplanes may have a maximal displacement of 360 cubic inches. The Prop has to be direct driven and not adjustable in flight. Since 2003 the span of the bottom wing has to be at least 90 % of the top wing. Many more regulations concern wheel size, minimum strength of the struttings, weight, round-visibility from the pilot's seat and more. Biplanes fly on the same course as the Formula Ones. The fastest Biplanes reach lap speeds of more than 330 km/h.

T-6

In this class all different versions of this classic military trainer come together. In Germany they gained their popularity mainly through Walter und Toni Eichhorn's beautiful aerobatic displays in their Red-Bull-T-6s. The only legal engine in this class is the Pratt & Whitney Wasp R-1340 roundie with about 600 hp. The big two-bladed Prop gives these planes a characteristic noisy sound. The course length for this racing class is 6.44 km. Speeds reach about 370 km/h. Since all the airplanes are aerodynamically and technically quite similar, the skills of the pilots are even more important here than in the other classes. The jet races are always very exciting.

Sport

In this class the most modern kit planes, like e.g. Lancairs, Glasairs Harmon Rockets and different Canards compete.



The displacement of the engines is limited to 10.651 cm³. Of every airplane type at least 5 kits have to have been produced and delivered to customers. Every airplane has to reach a minimum qualifying speed of about 320 km/h on the 9.66 km course. The favourites achieve a qualifying speed of more than 550 km/h!

Jets

For a short time there are also races for jets of the type L-39 Albatross. Even though these airplanes are not as loud and the competition has not been too hard so far, it is impressive to see a formation of 6 colourful jets rounding the course at about sage brush level ☺ with clearly more than 700 km/h.

Unlimiteds

This is the top class and the biggest spectator's attraction. The only mandatory thing is that the planes have to have piston engines. In the course of the years there were several specially designed race planes like *Miss Ashley II*, *Tsunami* and the *Pond-Racer*. But mainly fighters of the 40s and 50s are flown in this class.

These are mostly Mustangs, Sea Furies, Yaks and Bearcats, which are kept in a better-than-new condition by their owners with an immense effort. Some of these about 30 racers of the unlimited class are in a historical stock condition, others are extremely tuned. A stock P-51D Mustang used to have a take-off power of 1.490 PS; now at Reno there are some specimens which have more than twice the power in their Merlin engines.

The sound is simply overwhelming – and so is the speed. The fastest airplanes reach about 800 km/h – and this not just on a straight course, but as an average speed on a closed 12,875-km course very close to the ground! Not bad for prop planes with piston engines ...

The way the unlimiteds are flown in Reno can not be seen or be heard at any other place of the world. Even the farthest way to go to Reno is definitely worth it!

See you in Reno ...

More information can be found on our web page www.airrace.de. There you can find not only many of our air race pictures but also a list with lots of air race-related links.

The almost complete list of all Reno results since 1964 is available at the website of the Reno Air Racing Association at www.airrace.org.