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MAKING THE
HD DOCUMENTARY
FREEFLIGHT



THE MAKING OF *FREEFLIGHT*

Behind production of a one-hour HD documentary on ultralights and paragliders.

By Thomas J. Strodel

In fall 2003, my company, 24fps Productions, partnered with Anthony Lenzo and Air Sea Land Productions (www.airsealand.com) to pitch several high-definition documentaries to Rush HD, an extreme channel on the new Voom HD satellite system (www.voom.tv). Lenzo would be director of photography and I would direct.

Mark DeAngelis—vice president of programming and development, and executive

producer for Rush HD—went with two of the docs we pitched. One of the docs was on freediving, and the other one was on ultralight airplanes. DeAngelis recalls, “I really liked their pitch about freediving. I wanted to have two new shows to premiere in January, so I offered them the opportunity of producing both projects by the end of the year.”

We got what we asked for. Then we had to deliver. Both two-hour documentaries had to be complete and ready to air within 10 weeks. Doing a single one-hour documentary in 10 weeks would be a challenge. Doing two was extreme by any measure. But we were well prepared and jumped right into production.

Because the freediving documentary was based on an event happening in Hawaii, I decided we should shoot at least a portion of the glider program, which became known as *FreeFlight* during the trip, with a second unit.

Preproduction

But first, *FreeFlight* needed a script. Our writer William Kearney started with a simple concept of gliders and the stories of those who piloted them. My goal as director was to create a program that would match the incredible you-are-there HD imagery with a solid storyline that ran throughout the piece. Kearney and I developed the baseline of a script that gave us guidance while shooting in Hawaii, but left enough flexibility to let us take advantage of any changes in our plans. Eventually we adjusted the script and added Aspen, CO, as a second location.

Aided by associate producers Jennifer Nelson and Renee Colette, we completed all of the preproduction—including travel, equipment rentals, and insurance—in less than 10 days. One great find during preproduction was Gerry Charlebois, a pilot



shots of takeoffs and landings, static ground shots, Kauai beauty shots, interviews, and more.

Shooting in Kauai

We arrived in Kauai the night of November 9, and met up with Charlebois to discuss the following three days of shooting. Day one would be the most challenging because it involved a complex interaction of Alred on a jet ski filming hydroplane surfer Terry Chung, as our ultralight flew overhead to capture a matching reverse angle shot from within the ultralight.

The following morning, we drove to our first takeoff point, a dirt road on a remote sugar cane field inshore from where Chung would be surfing.

Our first shot called for Lenzo to ride shotgun with Charlebois, hand-holding a Sony DXC-H10 three-chip HD point-of-view camera. We were thankful Charlebois was well acquainted with film crews and with mounting cameras on his aircraft. But affixing a combined weight of 45 pounds outside the cockpit of an ultralight proved to be quite a challenge.

We mounted the Sony camera with a Canon FJ5 5 mm prime lens and Canon IMS-20 image stabilizer, a Sony HDW-250 HDCAM VTR, and 50 feet of cable. The VTR, camera controls, batteries, and audio system were placed inside a Kata Panda pack that hung on the ultralight's support struts under the engine. We mounted an ERG Ventures 6-inch HD LCD monitor with hood adjacent to the passenger seat. We stowed extra batteries and supplies in a kit underneath the seat.

It was a heavy and awkward load to secure. Of course, safety was our primary concern. One camera cable or component

not fully locked down could cause catastrophic failure if it flew into the plane's carbon fiber propeller.

Working against the clock and the ever-changing wind conditions, we secured the system onto the aircraft using bungee cords, tie wraps, gaffers tape, and Ultralight Control System grip arms. It was a tight fit, but Lenzo was able to squeeze in.

We didn't have remote VTR control, so we had to quickly start the deck and camera controls, zip the pack closed, secure the zippers with tie wraps, and get out of the way as the plane started takeoff. As a 60i HDCAM shoot, there was 40 minutes of tape time per flight.

DOING A SINGLE ONE-HOUR DOCUMENTARY IN 10 WEEKS WOULD BE A CHALLENGE. DOING TWO WAS EXTREME.

After 90 minutes of rigging, Lenzo and Charlebois took off to meet up with Chung and Alred, who were waiting just off the shore. I was amazed at how quickly the ultralight took off. During the flight, Lenzo looked at the external LCD monitor to tell him when to ride the iris, reframe the view angle, and clean the salt spray off the lens after dips close to the waves. Despite the limitations, Lenzo got some amazing handheld images of the take-off, Chung's surfing, the Kauai coastline, and the landing. After landing, we prepped the next set-ups, mounted POVs.

(above left) Thomas J. Strodel directed a one-hour HD documentary about ultralight and paraglider aircraft that was delivered to the Voom satellite service 10 weeks after Voom approved the concept. *(right)* During a three-day shoot on the island of Kauai in Hawaii, the team shot and logged footage for over half of the documentary.

who flies ultralights and owns Birds in Paradise flight school on the island of Kauai. Our preliminary production schedule called for a smaller, breakaway unit of four people to spend three days on Kauai capturing Gerry and his ultralight planes as the rest of the team continued filming the freediving documentary on the island of Kona.

Meanwhile, Lenzo put together an equipment package that would let us get the footage the script called for with the limited shooting time we had. Lenzo also brought on Jeff "Boomer" Alred, who would serve as a second camera operator.

On the flight to Kauai, Lenzo and I worked on storyboards and camera positioning. Lenzo devised five different POV camera positions on the ultralight. We needed several POV shots, aircraft-to-aircraft in-flight shots,





Jeff "Boomer" Alred, the second camera operator, shot handheld footage of ultralights in flight with a Sony HDW-F900 HDCAM camcorder fitted with a Canon lens and image stabilizer.

The first POV position was a low-angle shot looking forward from the left strut of the trike at the back of the ultralight. It's important in most POV work to include shots of the object the camera is mounted to in order to give a frame of reference for the viewer. The front wheel of the trike was our reference. We secured the camera and support systems using the same methods as before, except this time the camera was mounted directly to the ultralight itself.

The shots from this POV position were amazing. We had Charlebois buzz the beach and cornfields, producing breathtaking flybys

from only a few feet above the ground. Day one ended with a total of two flights.

During the day, I had been in contact with Andrea Hilderbrand, Alred's friend whom we met back on Kona. She was the hook our story needed: an intelligent presenter who also happened to be an aeronautical engineer and amateur pilot. Hilderbrand became our protagonist, and furthered my goal of connecting the audience to the sport. She would fly to Kauai the second day, as Kearney changed the script to cover her role just in time for our last day of shooting.

On day two, our second pilot, Andrew Doughty, joined us. Our first setup that day was a POV position looking back at the entire ultralight—pilot, and passenger—while taking the audience on a breathtaking tour of Kauai. We rigged our camera to a special arm that extended from the wing's leading edge. Charlebois constructed the arm and meticulously calculated the shift in the wing's center of gravity.

We countered the camera weight with Anton-Bauer Hytron 120 batteries mounted at the tail end of the wing. We chased and secured the camera cable through the wing, down the mast, along the struts, and into the VTR pack, which was mounted in its now-standard location underneath the engine. We knew even before we saw any footage that this camera position would give us the money shot.

For this flight, Lenzo would ride in Charlebois's ultralight, standing in for Hilderbrand, who didn't arrive until later that day.

Meanwhile, Alred geared up to shoot handheld from Doughty's ultralight. He would carry the Sony HDW-F900 HDCAM camera with stabilizer lens and capture the all-important aircraft-to-aircraft shots.

Renee Colette and I planned to chase the ultralights in our truck, in case unfavorable

AFFIXING 45 POUNDS OF CAMERA GEAR OUTSIDE THE COCKPIT OF AN ULTRALIGHT PROVED TO BE QUITE A CHALLENGE.

wind conditions kept them from landing in our takeoff spot, a common issue with light-weight aircraft.

After both ultralights took off, we prepped for the next shot. A few minutes later, we got a call from Doughty, saying that there was a problem with the camera rig on Charlebois's ultralight. The arm that it was rigged to snapped under excessive force shortly after takeoff, leaving it swinging from its safety cable in front of Charlebois's face. Lenzo was able to grab the camera and keep it out of the way until they were able to land safely on a back road. No one was hurt, and plane and camera were fine. We caught up with them, brushed ourselves off, and moved on.

The wind had picked up, so we moved to a new launch site, an old drag strip, where we mounted the camera in our third POV position: on the tip of the wing, which yielded great profile shots of Charlebois and the views underneath the ultralight. By the end of day two, we had only logged two flights per day. Weather and the accident had prevented more. But we had some good footage of takeoffs and landings, as well as a solid amount of POV shots.

Day three opened with high winds and intermittent rain clouds. We still had to get a lot of aerial footage, but we were essentially grounded. In the morning, we did interviews and grabbed some static beauty shots.

By afternoon, the weather cleared and we rushed to get in a few flights. Charlebois had



Lenzo used a Sony DXC-H10 HD camera fitted with a Canon FJ5 5 mm prime HD lens, and occasionally a Canon IMS-20 image stabilizer, to send a signal to a Sony HDW-250 HDCAM VTR packed into a Kata Panda camera backpack. Camera operators monitored the signal and framed shots through an ERG Ventures HDM-EV20D LCD monitor. On the right, the camera and VTR bag are mounted on an ultralight in the first POV position.

rebuilt the broken front-of-plane pole, so this was the first position we rigged. This time, Hilderbrand rode with Charlebois in his plane, and Lenzo was with Alred in the other.

To add sonic realism to the piece, we wanted to capture the banter between pilot and passenger. We had previously tried to tap directly into the intercom system, but it was too noisy. So this day, we wired Charlebois and Hilderbrand with Countryman EMW lavs. We placed the mic heads inside the foam windscreen of the pilot-to-passenger intercom headsets, and ran the cable to Lectrosonics 411 wireless transmitters.

I had Hilderbrand interview Charlebois in the air so we could match it to his sit-down interview. This flight proved to be one of the best, yielding amazing shots and great dialogue interaction between the two.

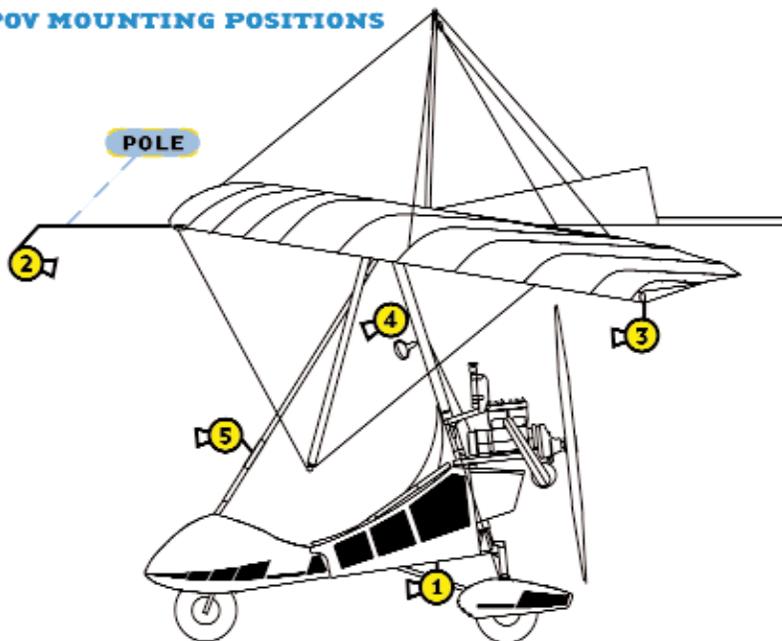
This day, our last on this project in Hawaii, we got in three flights, two more POV positions (above the pilot and in front of the plane), all of the interviews, and all of the scenics. It was quite a ride, but *FreeFlight* was only half shot.

Shooting in Aspen

Three weeks later, we found ourselves in Aspen—a stark contrast to the Jurassic Park–like terrain of Kauai. This time, Lenzo, Alred, and I were joined by a local production assistant and Hilderbrand.

THE ARM HOLDING THE CAMERA SNAPPED AFTER TAKEOFF, LEAVING IT SWINGING FROM ITS SAFETY CABLE IN FRONT OF CHARLEBOIS'S FACE.

POV MOUNTING POSITIONS



To ensure he got footage that provided coverage and drama, DP Anthony Lenzo established five key positions for the point-of-view camera mounted on the ultralight aircraft. (Illustration by Francis Ball.)

I scheduled a three-day shoot, as we had in Kauai. Our other documentary was already deep into postproduction back in New York, and our deadline for both docs was fast approaching.

Our objective in Aspen was to capture top paraglider pilot and Boeing engineer Zack Hoisington as he sailed down Aspen Mountain in a tandem paraglider with Hilderbrand as his passenger. We would also film several other paraglider pilots, conduct interviews, and capture Aspen scenics. For the story, I wanted to see Hilderbrand interact with Hoisington and get really involved with the sport.

We had prepared to shoot in the same style as we did in Kauai: rigging a POV camera to the paraglider and simultaneously shooting aircraft to aircraft with the Sony F900. Lenzo came up with a few different POV positions, including helmet mounted, pole mounted, and the most challenging—mounting the camera to the support structure of the paraglider wing.

Paragliders weigh considerably less than powered ultralights and aren't rigid. The Sony POV camera and Canon lens we used in Kauai were too heavy to use on a paraglider. So Lenzo devised a different POV system that



After the first attempt at mounting a POV camera on a pole failed mid-flight, ultralight pilot Gerry Charlebois devised a stronger system that let Strodel and Lenzo get the shots they wanted.



In Aspen, Lenzo taped the flight of a paraglider team with a Sony F900 camera and captured their in-air conversation through a Lectrosonics wireless system of MM400 transmitters and UCR211 receivers.

FEATURE The Making of *FreeFlight*

consisted of an Ikegami HDL-20—a ¾-inch, two-chip CCD camera—with a Canon 7 mm lens and tethered it to the same Sony HDW-250 VTR packed into the Kata bag. He monitored via a down-converted signal from the record deck fed to a tiny heads-up display rigged under his helmet.

Day one was clear and crisp with temperatures hovering near 11 degrees Fahrenheit. We met up with Aspen Paragliding's Alex Palmaz, who was our second pilot, and was the person who ferried our equipment cases in the gondola to the top of Aspen Mountain. The loose snow made our hike down to the launch zone exhausting. For later trips, we were assisted by the Aspen Snowmass Ski Patrol and their snowmobiles.

Our first setup was a pole-mounted POV shot that Lenzo would film while in a tandem flight with Palmaz. Palmaz wore the Kata VTR pack on his back over his paraglider harness. Lenzo held the pole-mounted camera and framed his shots with the heads-up display he wore. As in Kauai, we had no remote control of the deck, so it needed to be started just before takeoff. Alred positioned himself on the face of the mountain with the Sony F900 to capture their takeoff and those of the other paragliders who had met up with us.

There's a small window of time where you don't know if a paraglider launch will be successful. This window opens as you run toward the edge of the mountain. When the wind was just right, Palmaz and Lenzo ran toward the precipice of the mountain. At the last moment, the paraglider caught air and gently sailed away.

Immediately after the takeoff, Nelson and I rushed back to the top of the mountain, rode down the gondola, and drove to the landing zone to meet up with Palmaz's paraglider.

After the landing, we hurried back up the mountain and prepped for the second

shot. This time, we mounted the camera on Hoisington's helmet as he and Hilderbrand rode tandem. We mic'd both so we could hear their conversations. Alred rode tandem with Palmaz this time, capturing in-flight handheld shots with the F900, then landing first so he could get shots of Hoisington and Hilderbrand landing.

The flights were a great success. The positioning of the POV camera was perfect, in-flight dialog was insightful, and the POV shot of the landing was amazing.

Each turnaround took about three hours, so we had to scramble to get in three

THERE'S A SMALL WINDOW OF TIME WHERE YOU'RE NOT SURE A PARAGLIDER LAUNCH WILL BE SUCCESSFUL. THIS WINDOW OPENS AS YOU ARE RUNNING TOWARD THE EDGE OF THE MOUNTAIN.

flights per day—and that's if the weather cooperated. Day two looked bleak; the weather service predicted snow.

As promised, we awoke on day two to light snow. We couldn't waste the day, so we interviewed Hilderbrand and Palmaz in the lounge of our hotel. Afterward we trekked up the mountain with our gear, just in case the weather got better. What was a small dusting at the base became a near blizzard at the top of the mountain.

We shot Hoisington's interview outside during the snowstorm, then as the weather

improved, we headed to the original launch site. With paragliding, you're completely reliant on perfect wind and weather conditions. Pilots wait hours before launching. Although the snow stopped falling, the wind remained unpredictable. So we taped Hilderbrand doing a walkthrough of the paraglider with Hoisington. We made no flights that day.

Day three gave a mix of good and bad weather. From the original launch site, we got off one flight with an over-the-shoulder POV of Hoisington and Hilderbrand. The camera was mounted off an Ultralight Control System arm fastened to the Kata VTR backpack. But the weather quickly deteriorated, so we moved to the leeward face of the mountain to attempt our most challenging shot.

When we arrived at the new launch site, wind and weather conditions were just right, but only for the moment. We had very little time to rig the shot.

A paraglider's pilot harness connects to the wing via a complex array of Kevlar lines. Working with Hoisington, Lenzo and I carefully fastened the Ikegami HDL-20 to one of the main support lines, then chased the camera cable down the line and into the Sony VTR. The trick was to attach the camera at a downward-facing angle that would correctly frame both the pilot and passenger. We secured the cable to the line every foot with electrical tape, leaving a small loop of wire at the top for strain relief.

On this flight, Hilderbrand rode tandem with Hoisington, and Lenzo shot with the F900 as he flew with Palmaz on the second paraglider. Hilderbrand and Hoisington mounted up and waited for the wind. Pilots normally launch paragliders with the wing laid out on the ground. On tandem flights, the pilot and passenger run into the wind, which first inflates the wing and then lifts both off the ground. As Hoisington and



For the paraglider shots, Lenzo devised a POV system with an Ikegami HDL-20 camera and a small Canon 7 mm lens, and tethered it to the same Sony HDW-250 VTR packed into the Kata backpack. He monitored through a tiny heads-up display rigged under his helmet.



Because weather prevented flying during the tight production schedule, Strodel conducted an interview with paraglider pilot Zack Hoisington as they waited for the weather to turn.

For More Information

You can view a sample video clip from *FreeFlight* at www.24fpsproductions.com. *FreeFlight* ran on Rush HD, one of 21 original programming channels found on the Voom satellite service (www.voom.tv).

Here is a list of the key equipment used during field production of *FreeFlight*.

Anton-Bauer Hytron 120 batteries
www.antonbauer.com

Canon FJ5 5 mm prime HD lens
www.canon.com/bctv

Canon 7 mm prime HD lens
www.canon.com/bctv

Canon IMS-20 image stabilizer
www.canon.com/bctv

Countryman EMW lav microphones
www.countryman.com

ERG Ventures HDM-EV20D LCD monitor
www.erg-ventures.com

Ikegami HDL-20 camera
www.ikegami.com

Kata Panda pack
www.kata-bags.com

Lectrosionics 411 wireless transmitter
www.lectrosionics.com

Micro Optical SV-3 heads-up display
www.microopticalcorp.com

PipeLine Digital AutoLog
www.thepipe.com

Sony DXC-H10 HD CCD Camera
www.sony.com/professional

Sony HDW-250 HDCAM recorder
www.sony.com/professional

Sony HDW-F900 HDCAM camera
www.sony.com/professional

Ultralight Control System grip arms
www.ulcs.com

Hilderbrand's wing lifted, a clump of snow fell off the wing and hit the lens of the mounted HDL-20. Fortunately, the speed of the wind blew off all of the snow and droplets of water a few minutes into the flight. Meanwhile, Lenzo and Palmaz launched and chased down Hoisington and Hilderbrand.

The images from the canopy-mounted POV were the first of their kind ever done in HD. They looked great and helped tell the story. Weather conditions notwithstanding, Aspen was a great success. We had all of the elements we needed for the documentary. Now we had to put them together.

Post

Because of the tight production schedule for both programs, I brought on Jamie Salkind during the Kauai shoot to dub the HDCAM camera masters to DVCAM tapes with intact

timecode, then log them into a FileMaker database via Pipeline Digital's AutoLog. That saved us a tremendous amount of time, and allowed our editor, George Schifini, to start digitizing and editing clips immediately upon our return to New York.

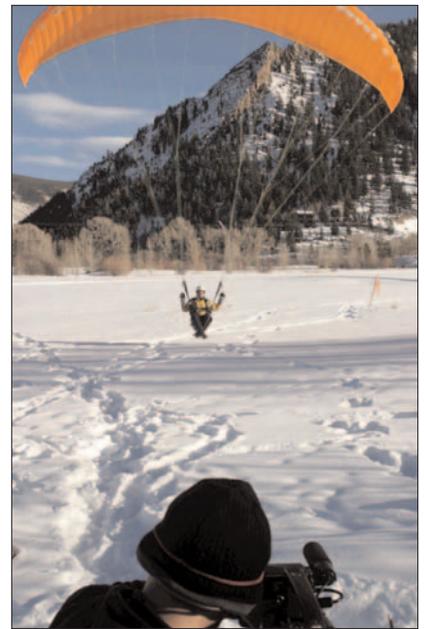
We logged the Aspen footage when we got back from that trip and then integrated it into the final edit. Our shooting ratio for *FreeFlight* ended up around 40:1.

We used stock music tracks from Associated Production Music (www.apmmusic.com) for the music. Their tracks were fresh and upbeat, a perfect fit for the excitement of the scenes. Schifini edited the offline in DVCAM using Final Cut Pro 4.0. He included low-resolution graphics, and added a voice-over track by Joey DeGraw. Mike Ryan, our audio engineer on the free-diving documentary, came in and, during a down-to-the-wire session, cranked out a fully mixed audio program using his portable Digidesign Pro Tools system.

We conformed and color-corrected the piece at Air Sea Land Productions on its Final Cut Pro HD system. Amit Sethi of Big Film Design created the HD-resolution graphics package. We integrated those graphics with the online and the final audio mix, and output to an HDCAM that we delivered to Rush HD. We completed the entire postproduction process in two weeks.

On *FreeFlight*, time and weather presented our biggest challenges. But we managed to pull off a great program with breathtaking imagery and a solid, interesting storyline. We're currently in the development of other similar projects, and programming within other genres.

Mark DeAngelis of Rush HD was happy. He kindly wrote, "You always take a chance when you work with new partners and under such a tight schedule. To not only get back incredible shows, but to be dealing



To capture paraglider landings, the camera operators would accompany a pilot of another paraglider, land minutes ahead of the hero paraglider, and set up before the other landed.

with top professionals who care about what they are doing was a big win for me."

Rush HD is using both shows to promote and market the network. The care we took in production paid off, and showed what you can accomplish in HD even when you don't have much time. ■

Thomas J. Strodel is an independent producer and director. His New York City-based company, 24fps Productions (www.24fpsproductions.com), specializes in development and production of programming in the lifestyle, documentary, travel, adventure, and sports genres.



With only three days to shoot, the team had to shoot all of the scenes they needed whenever the weather allowed, regardless of their location and preset schedule.