

Skydiving™

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Free Stowing Cited in Two Fatalities

Two recent fatal accidents and several malfunctions has caused the Canadian Sport Parachuting Association and several equipment manufacturers to evaluate the practice of "free stowing" suspension lines in the bottom of the pack tray.

Two jumpers were killed in separate incidents when the suspension lines of ram-air main canopies became entangled with one of the flaps of their main containers during deployment. The resulting malfunction is especially dangerous because activating the canopy releases won't necessarily jettison the canopy. In both of the accidents, both jumpers released the risers of their main canopies and deployed their reserves which entangled with the still-attached main.

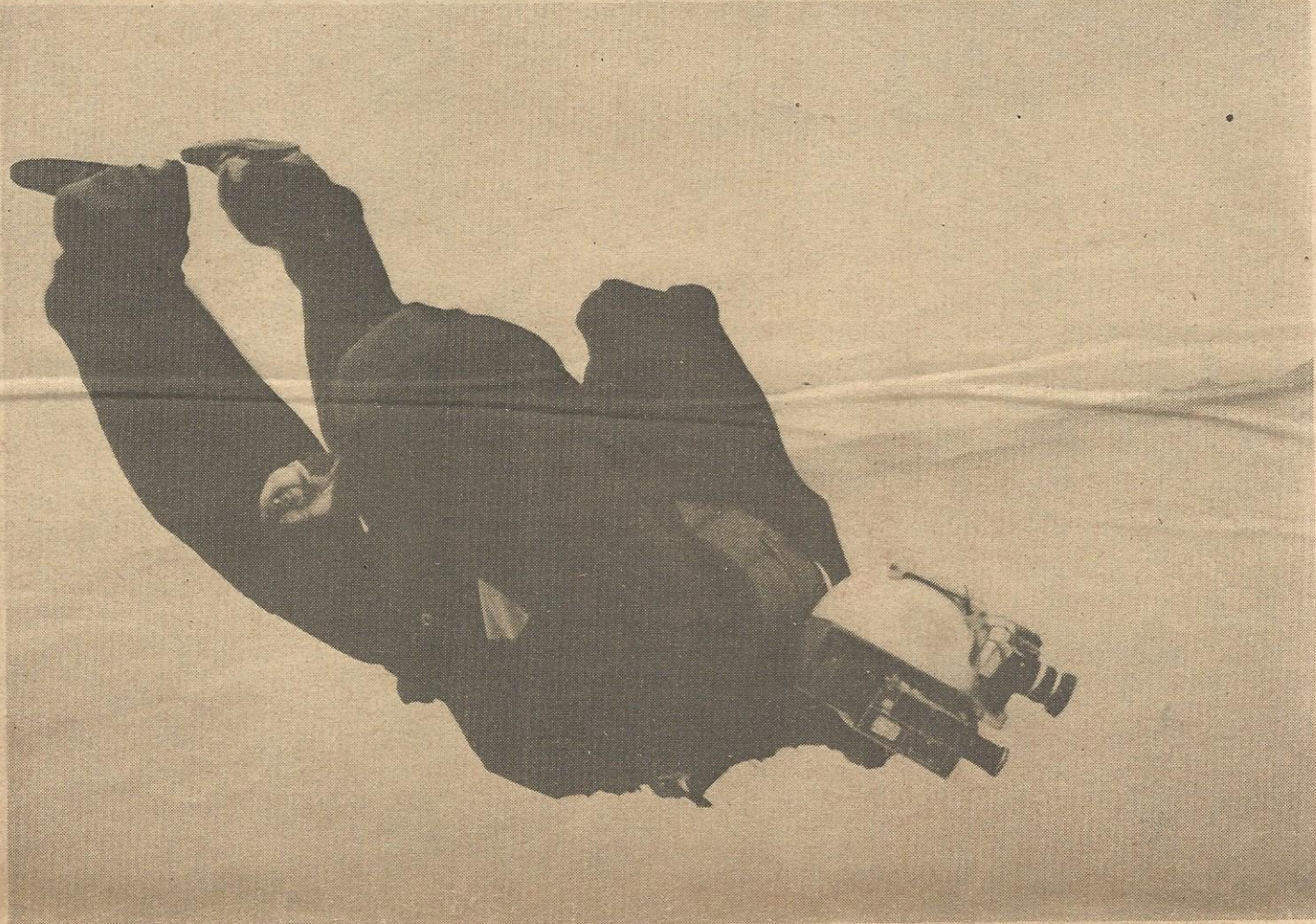
Both jumpers used the free stowing method during packing, where the lines are coiled in the bottom of the container instead of stowed in rubber bands on a deployment bag. The CSPA suspects the lines fly about as the canopy is extracted during deployment and are able to snag a flap in a half-hitch manner.

Discussion of the accidents during the Parachute Equipment Industry Association meeting in Salt Lake last month revealed that at least four other jumpers had experienced the same type of malfunction. In one case the flap was torn off the rig by the opening main canopy. In another the jumper successfully pulled his Para-Flite Safety-Flyer reserve into the trailing main.

The incidents have involved a variety of main canopies and containers.

As a result of the accidents, Para-Flite, Inc., has circulated a bulletin advising jumpers and riggers to install rubber bands on the sides of the com-

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Photographer Ray Cottingham swoops down to the formation over Perris Valley, Calif. Photo by Phil McCormick.

Approval of El Capitan Jumping Delayed

by Robin Heid

At its spring meeting in Salt Lake City, the USPA board of directors passed a resolution outlining requirements for jumping from El Capitan. For many skydivers, that meeting marked the end of the problems which have plagued those interested in skydiving from the mountain — the Park Service had said they intended to issue permits as soon as the national organization sanctioned the

leaps, and now that had been accomplished.

This is not the case, however. Instead of accepting the requirements without question, National Park Service officials are proceeding slowly, in order to "cover our asses a little," as one Yosemite administrator described it.

Chief Ranger Bill Wendt is drafting a presentation for NPS regional officers, a document he says has a good chance of being accepted without debate or difficulty.

"The bureaucracy's case for being against it isn't very strong," he said. "They wanted guidelines to go by, and now they've got them. And a precedent has already been set with the hang gliders. The second time is easier." He went on to explain that the hang glider issue, which took place several years ago and involved many of the same questions the skydiving situation does, went all the way up to the Department of the Interior.

"The top administrators responsible for the NPS were involved in the hang gliding case," he said. "This (skydiving issue) will undoubtedly go the same route."

When asked what his office would do about enforcing existing rules if the issue is still being debated in government offices when the expected flood of

skydivers appears this summer, Wendt replied "I expect to have some kind of answer by Memorial Day, which is the earliest anyone could jump anyway, because of snow in the high country and

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Pope Valley Closes

Jumpers at Pope Valley Parachute Center observed the closing of that drop zone on May 5 by building a 40-way formation from 15,000 feet out of two DC-3s. The effort was organized by Bob Bonitz, Tom Mele and Mike Sandburg.

The center was closed because an amateur aircraft builder purchased the airport and some of the surrounding land. He gave Bill Dause, manager of the drop zone, thirty days to move out. Dause dismantled and kept the steel hanger as the new owner didn't wish to buy it.

Dause is looking for a new home for his two DC-3s, two Cessnas and Twin Beech in Northern California. Several sites have been explored, including ones near the cities of Tracy and Hollister, but nothing definite has been found.

Pope Valley first opened in 1972 and quickly became recognized for both its excellent facilities and the substantial talent of skydivers who jumped there.

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Big round star and 11-stack built

Georgia Parachute Council Holds First Meet. 18

Regional meet attracts 130 competitors

Several unofficial world records set; 600 jumpers show up

Zephyrhills Easter Boogie Draws Big Crowd



The 36-way round built over Zephyrhills on May 5. Photo by Randy Quiroz.

The 1980 Zephyrhills Easter Boogie was a good one, as about 600 jumpers from around the world traveled the Florida drop zone to enjoy the warm weather and large aircraft. The weather was mostly cooperative with clear skies, warm temperatures and light breezes during most of the nine-day event.

There were several significant accomplishments that highlighted the "fun jumping" for which the boogie is noted.

Forty skydivers exited the center's Douglas C-47 at 15,000 feet without jumpsuits in an effort to build the world's largest round star. Photographs later showed that 36 were successful in

entering the star by the 4,000-foot breakoff altitude. The star is the largest one built since a 33-way was formed over Tahlequah, Okla., by jumpers from Elsinore, Calif., at the conclusion of the 1976 U.S. Nationals.

And, a couple hours after the 36-way was built, eleven jumpers went up and

built the largest canopy stack completed so far.

But both jumps didn't cause any of the jumpers on the ground to slow down at all, as the drop zone was well populated with jumpers with the money and enthusiasm to make as many skydives as they could during their stay.

Although the boogie is formally scheduled for the Easter weekend, jumpers began arriving the weekend before. By that Monday, several hundred of them had settled into the little town of Zephyrhills, filling up motels and adding to the center's substantial population of fulltime winter skydivers. The weather on Monday and Tuesday, however, was terrible as rain and low clouds prevented all but two loads.

The "no suiters"

Dan Landis, a winter employee of the center and supervisor of its RW instruction program, was determined to organize a successful assault on the big round record. He discovered two years

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The Cruisair Project.

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Para-Flite's goal: design a ram-air that would meet the needs of the most demanding relative workers. This new canopy had to be small and light enough to fit in any rig — but big enough to land softly in all conditions. It also had to be fast and responsive, for fun and for easy canopy RW. Reliability and durability couldn't be compromised, either.

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With the goals established, the project began. A professional aerodynamicist was consulted. Different airfoils, materials and construction techniques were tested and retested. Para-Flite drew heavily on its 10 years of building such great canopies as the Para-Plane, Strato-Star, Strato-Cloud, Strato-Flyer and Safety-Flyer.

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(continued from page 2)

him strike the aircraft and one saw him tumble out of control into the darkness. His body was found in a field near the drop zone about fifteen minutes later, and his injuries and damage to the horizontal stabilizer indicated that his head struck the tail.

Investigators concluded that the rangy jumper was blown back into the tail as a result of his exit technique, his big jumpsuit, the attitude of the aircraft and the power its engines were developing. They pointed out that the two jumpers who exited before Ferreira had no problems.

The accident was called a "fluke" by one knowledgeable jumper, as it apparently is the first time a skydiver had hit the tail of an aircraft after exit. (Jumpers have struck the tail after getting pulled out of the aircraft when their rigs deployed while they were exiting.)

Free-Stowed Lines Involved in Fatalities

(continued from page 1)

pany's deployment bags to accommodate all but about 12 inches of suspension line. (Until now, Para-Flite bags were designed to accept just two stows, the ones that secured the locking flap. The rest of the lines were then coiled in the container.)

The PEIA issued a notice advising jumpers that free packing wasn't advised and that a deployment bag should be used so the lines can be stowed.

The Altitude Shop, manufacturer of the Corsair and Classflyer rigs, also issued a similar bulletin.

Duncan Grant, technical director of the Canadian Sport Parachuting Association, provided *Skydiving* with

details on the two fatal accidents involving suspension line and container flap entanglements:

Accident #1: Involved a 21-year-old male jumper with 160 jumps. He was jumping a Relative Workshop Wonderhog, a Para-Flite Strato-Star and a 26' lopo equipped with a deployment diaper.

The jumper was presented with a malfunctioned main canopy that was not spinning. He deployed his reserve at an altitude of 300-600 feet. The reserve deployed past the main, the lines completely extended, the diaper released but the canopy was only about half inflated at impact.

Accident #2: The jumper was a 25-year-old woman with over 1000 jumps. She was jumping a Flying High Bullet, a GQ Security Unit and a 26' lopo with a diaper.

In this incident, the main was malfunctioned and rotating rapidly. The reserve canopy entangled with the spinning main immediately after it left the container as the diaper never released and the lines were still stowed in the pack tray.

Grant added that both main canopies were "substantially opened when the malfunction was noticed and cutaway (procedures) were initiated." He added that both accidents occurred after 4-way RW jumps with main deployment at about 2,200 feet in both cases. Both released their main risers, probably before pulling the reserve ripcord.

He said one canopy was packed in a bag, while the other was free packed. In both cases the lines were free-stowed in the pack tray.

The association recommends that jumpers not free-stow their lines, that a hook knife be carried and that jumpers look for a hang-up prior to jettisoning their mains.

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Jumping in Italy

Compared to European countries, jumpers in the United States still enjoy comparatively cheap jump rates, inspite of rapidly escalating costs.

Marone Valbonesi of the Stadium sporting goods company in LAVORNO, Italy, recently wrote *Skydiving* and reported that a jump from 2,500 meters (about 8,100 feet) costs \$12.50. He also said that the Cessna Turbo 206 is a popular jump aircraft in that country as the Italian Aero Club recently purchased "many" of the 6-place single-engine aircraft.

A first jump course takes "about four weeks," with progression in accordance with FAI procedures.

Compared to some Scandanavian countries, however, Italy has it great. A jump from 10,000 feet in that region usually costs at least \$20.

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Up & Down Shop Offers Convertible Piggyback

The Up & Down Shop in Balch Springs, Tex., has started marketing its Catalyst piggyback harness and container system. President Bob Chaffin reports that the rig has received FAA TSO approval and his company is ready to begin delivering the rigs.

The Catalyst has several unique features. It may be converted from ripcord to hand deployment — and back again — in five minutes with no tools or sewing, according to Chaffin. The company feels this option is especially attractive to novice jumpers who are progressing to more sophisticated gear such as piggybacks and hand deployment but don't want to do so all on the same jump.

The ripcord system is similar to that on the North American Aerodynamics

Condor piggyback. The handle is connected to a length of suspension line which terminates in a short metal pin. Pulling the ripcord about three inches will release the main container and pull back the side flap. But the pin will not pass through the housing, so it's impossible to lose the ripcord. The main ripcord handle is a compact loop design that the company calls the Sure-Grip.

The hand deploy system is similar to the patented system on the Relative Workshop Wonderhog, with a curved metal pin keeping the container closed. The curved metal pin is felt to be the best locking mechanism for hand deploy designs of this type.

The Up & Down Shop offers the Catalyst in three standard harness sizes and nine color combinations. There is a

harness design especially for women, and camouflage fabric is also available at no extra charge. Containers are built from double parapak fabric, and Cordura fabric is available at no extra cost. The Catalyst can be built in sizes big enough to accept high-bulk canopies such as the Pioneer Paracommander.

The reserve container is patterned after the one on the Stewart Systems Sweet Hog. It is compatible with the Para-Flite Safety-Flyer and Safety-Star reserves as well as round reserves up to size of a 26' Navy conical. The reserve ripcord has a metal Martin-Baker type handle.

The 3-Ring Release is the standard canopy release mechanism, and a set of 3-Ring risers is provided with each rig. Suggested retail price is \$375, and

\$35 extra will let the customer order a Catalyst with "practically any custom feature he can think of," according to Chaffin. The rig is available from the Up & Down Shop as well as dealers.

Chaffin said he's been jumping a Catalyst for about six months and has sold several in South America as well as in the Southwestern U.S.

More information is available by writing the company at 3509 Peach Tree Road, Balch Springs, TX 75180 or calling (214) 557-0310.

POPS Winter Meet

Fifty-nine skydivers attended the Parachutist Over Phorty Society's Winter Meet at Eustis, Fla., early last March. Eleven of the "POPS" traveled from England and one came from as far away as Australia for the two-day competition.

Bert Beverly won both individual events by scoring three dead centers in the individual accuracy event and winning the hit'n'rock with a time of seven seconds. Hit'n'rock is exclusively a POPS event. The jumper is timed from the instant he touches down until he plops down in a rocking chair located on the target.

Larry Cordiero was second in individual accuracy with a three-jump total of 1.07 meters; Lew Sandborn was third at 1.23 meters.

The third event was a 4-way RW scrambles. The winning team was made up of Lew Sandborn, Tom Jordan, Harry Erwin and Roy Grace. The runner-up team was comprised of Larry Rossi, Wayne Powell, Jerry Thompson and Tom Morrison.

The next major POPS meet is the POPS nationals, scheduled for May 24-26 at Tahlequah, Okla. The Winter Meet will be held at Eustis next March.

POPS is open to any jumper who is more than forty years old. The youngest jumper at the Winter Meet was 40, while the oldest was 68. The least experienced jumper had logged 36 dives, while one has more than 4100. The average for the 59 competitors was 836 jumps made over a 13-year span.

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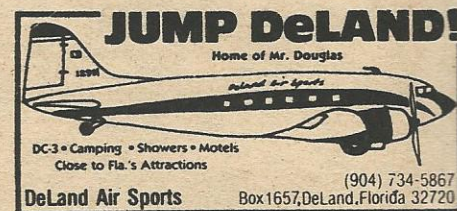
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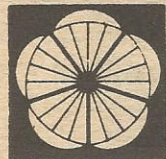
Such response makes some jumpers call the Merlin a "sports car of a parachute."

But the Merlin may not be the ideal canopy for a relatively inexperienced jumper who is not yet a competent ram-air pilot. Novices are more apt to overcontrol a Merlin. A typical mistake is flaring too high above the ground.

New jumpers who are shopping for their first ram-air might consider an all-around canopy such as the Pioneer Viking Superlite 2. The Viking Superlite 2 is a bit larger than the Merlin. It's as responsive as comparable canopies and has a full range of toggle travel. A novice jumper is therefore less likely to overcontrol it. It's an excellent canopy for accuracy, too.

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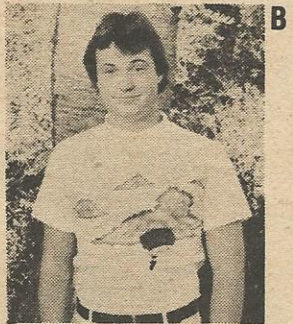
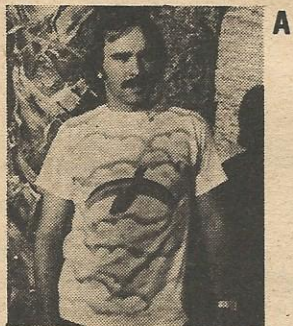
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Good Weather and Big Aircraft Help the Success of Easter Meets.

Easter is a traditional time for skydiving boogies, and this year was no exception. Enjoying good weather all over the western U.S., skydivers at several drop zones made many jumps during the long weekend.

Perris Valley, Calif., was the scene of the largest gathering. Over 500 jumpers showed up for three DC-3s and an informal relative work seminar. Manager Joe Morgan reported 25 loads a day were made. The DC-3s ran steadily from sunup to sundown, with only one mechanical problem that downed a single bird for three hours one day.

Pat Works described the seminar at the Easter meet as more informal than the one held at the Thanksgiving boogie.

"Al Krueger and I did the seminars at night. During the day, we just had a number of experienced Perris jumpers make themselves available for a particular kind of jumping. If people wanted to do sequential, they signed up with one group — if they wanted to do speed stars, skydance or megablots, they signed up with those groups.

"Anybody who didn't know anybody here, or know how to get on loads were instructed to come to the manifest, where they were matched up with folks interested in the same things they were."

The drop zone owners, Ben and Diane Conatser, gave away a lot of free tickets to Perris Valley regulars, under the single condition that they include visiting jumpers on their loads. Said Works, "it was Diane and Ben's way of thanking the Perris people for their contributions to the drop zone and a way to make visitors feel real welcome. And it worked."

The weekend was marred slightly by the death of John A. Bird, who pulled his reserve at 75 feet after being unable to find his main ripcord.

"He had 95 jumps, was using borrowed gear, and had a cast on his left hand," said Morgan. "What can you say?"

Coolidge Parachute Center in Arizona had an Easter boogie attended by approximately 150 people, way down from the 300 or more that showed up the year before. Owner John Janes felt high fuel prices contributed to the smaller crowd, but he felt the boogie was a success anyway.

"We had four rounds of 8-, 10-, and 12-way competition, and lots of fun jumps were made. All three of our Beeches were running constantly."

The competition portion of the weekend was won by "The Things That Wouldn't Go Away," a local team organized by Tom Piras.

Coolidge also had a death during its boogie. Grant Roebuck, a jumper from Canada, incurred a main-reserve entanglement when lines from his main canopy snagged on his container, preventing separation from the main. Roebuck survived the impact, but died later that evening at a local hospital.

In Oklahoma, Ken Hills' Skydance drop zone moved its operation from Tahlequah to nearby Muskogee for its Easter weekend. Eighty jumpers showed up to skydive from two DC-3s and a Lockheed Lodestar which operated from Muskogee's 7,200 foot paved runway.

"We had two days of good weather," said Hills, "and we got a lot of loads off on those days. On Sunday, however, the winds blew 50 mph."

Hills reported that jumpers from as far away as Indiana showed up for the three-day affair.

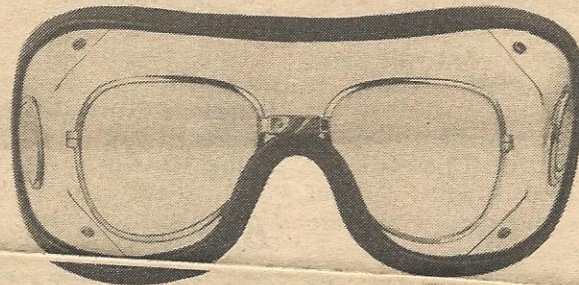
Gordon Wicksten

Gordon Wicksten, a jumper and pilot widely known in the western U.S., died in an aircraft accident March 2 near Reno.

Wicksten was copilot aboard a modified Martin B-26 that was flown by the University of Reno for desert research. The cause of the accident is under investigation.

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Avgas Situation Brightens

Widespread shortages of avgas occurred during February and March, but there are indications that the worst of the drought may be over.

Several refiners including Shell, Texaco and Chevron have announced they will be increasing their avgas production. Phillips Petroleum, which traditionally supplied about 25-35% of all avgas used in the U.S., said it was doubling its avgas output over February and March.

As a result of these actions, industry observers struck a note of guarded optimism about the adequacy of supplies throughout the summer and fall. No one seemed willing to speculate about supplies beyond that, however.

Catalyst to the recent supply disruptions was a January explosion at the Phillips refinery in Texas where the majority of the company's avgas is produced. When the plant went down, FBOs from Florida to the Rockies were suddenly either cut off from avgas completely, or had their contracted supplies of avgas reduced to just 35%.

Operators scrambled for fuel — one Florida FBO trucked a load in from Minnesota — and prices soared. A mid-March nationwide survey of 250 FBOs conducted revealed that the mean average price of 100LL was then \$1.60 a gallon, with a high of \$1.98 and a low of \$1.30.

Further compounding the problem was the fact that major suppliers were selling avgas on a tanker load (8000 gals. or more) and cash-up-front basis, and many small outlets had neither the storage capacity nor the money to meet those terms.

When it appeared that the fuel shortage might hamper ag aviation operations, however, the federal government stepped in. At a late March conference in Washington attended by many of the major oil firms, the Department of Energy let it be known that if the petroleum outfits could not find a way to assure adequate avgas supplies for ag aviation, the government might have to find a way for them. The day after that meeting took place, several oil companies announced they would increase avgas production.

Meanwhile, Phillips said that by increasing avgas production at its other refineries, and by product exchanges with other companies, it was increasing its deliveries of avgas to contracted customers from 35% to 70% of promised volume. One Phillips spokesman said, however, that he did not expect deliveries to reach 100% of contracted volume until the Texas plant is returned to full operation, and that is not expected before year end.

Comet International Announces Canopy

Comet International Air of Santa Ana, Calif., has announced the introduction of a new ram-air main canopy. Specifications released by the company are quite impressive, and if true, the new parachute will be strongly competitive with other canopies on the market.

The new canopy, called the Comet, is a cross-ported 7-cell made of Harris F-111 fabric. Surface area is given as 228 sq. ft., making it about the same size as the Para-Flite Strato-Cloud and Pioneer Viking Superlite II, both of which have an advertised area of 230 sq. ft. But the company says the canopy weighs 7.4 pounds with risers and bag, making it several pounds lighter than those two canopies and in the same league as the so-called mid-size canopies that have about 200 sq. ft. of area.

Performance figures are equally impressive, with a 32-38 mph forward speed and a 3.75:1 glide angle. These numbers are better than those claimed for the canopy's competitors.

Although 750-lb. test Dacron lines are standard, 700 lb. Kevlar is offered as a \$30 option.

List price is given as \$695, although the company explains, "orders to U.S. customers are restricted until patent rights are clear." More information is available from the company at 2233 Huron Drive South, Santa Ana, CA 92704, (714) 751-1660.

Sky's West DZ Opens in Colorado

A new parachute center has opened near Loveland, Colo., and Owner Bob Moorehead says the facility's wide range of services are already making it popular.

Called Sky's West Parachute Center, the new DZ is located on Loveland-Ft. Collins airport about 50 miles north of Denver. Three jump aircraft are available: a Cessna 205, a Cessna turbocharged 206, and a Cessna 404. The Cessna 404 is a 15-place turbocharged twin that can climb to 12,500 AGL in about 15 minutes. It may be the first Cessna 404, an aircraft of modern design, to be regularly used for jumping in the U.S.

Moorehead charges \$12.50 to 12,500 out of the 404.

Sky's West is open every weekend throughout the year, and will be open fulltime "when it warms up," according to Moorehead.

The center has indoor packing facilities, rigging services and first-jump instruction.

Sky's West will be the site of a "Nationals qualifying meet" on May 31-June

1 to allow competitors to qualify for the U.S. Nationals.

More information is available from the center by writing Sky's West Parachute Center, Loveland-Ft. Collins Airport, Loveland, CO 80537, or by calling Moorehead at (303) 221-1300.

Big Blots Planned For Spaceland

Spaceland Paracenter, south of Houston, will be the scene of some large formation attempts during the Memorial Day weekend, according to Joe Svec, one of the organizers. Ron Mills, Phil Smith, and Svec are planning to put together four or five attempts with fifty jumpers, who will exit in 25-man groups from the center's fast-climbing Deltavilland Twin Otter turboprop aircraft. Svec didn't elaborate on the formations they're hoping to build, but did offer a little insight into the reasons behind the attempts.

"It's just for grins, man. It's something to do."



Richard Laniel of Quebec exits a Cessna with his daughter on her second birthday. The jump caused considerable controversy with the local media.

El Capitan OK Held Up

(continued from page 1)

lack of available personnel. Many of our summer people don't arrive until after that date."

"Some type of permit will be issued if it looks like the thing will be approved, even if it's still being debated."

Wendt acknowledged the possibility that the Park Service will not agree to the proposed regulations and veto the plan, in hopes that, by ignoring it, the problem will go away. But he said he is making every effort to insure NPS officials realized the jumping will continue, regardless of legal status. He cited problems with enforcement and priorities, and concern over safety as reasons why legalization would be beneficial to the park.

"It takes a lot of time and manpower to discourage cliff jumping, and as law enforcement officers, we have more important things to do."

"I'm also worried that someone's going to get hurt while they're trying to sneak around up here in order to make a jump. I intend to tell the regional officials that the cat-and-mouse game we've been playing up here is just plain counter-productive, and that a solution must be arrived at quickly."

Wendt himself is ambivalent about the jumping. He is, first and foremost, responsible for the park's well-being, and is primarily concerned with maintaining the park's beauty and tranquility with a minimum of controversy.

"If putting up an electric fence all around El Capitan would be the best solution to the problem, I'd support it," he admitted, "but I don't think it is. I hate to use a tired old expression, but I'm primarily concerned with seeing

that Yosemite is not turned into some kind of circus. The dignity of the park must be maintained."

Wendt said he is doing all he can to guarantee quick resolution of the El Capitan issue, and expressed confidence that the matter can be resolved to the satisfaction of all parties involved. He did ask for patience on the part of jumpers, though.

"Give us a little time," he said. "We all know how slowly the government can move when it has to make a decision."

Skydiving

Parachuting's Newsmagazine

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Plastic Ripcord Handle Involved in Fatality

A parachutist was killed April 20 at Kelly's Field near Mooresville, Ind., after breaking away from a malfunction and failing to deploy his reserve. Preliminary reports indicate that he may have been unable to pull his reserve because its plastic ripcord broke.

Dennis Green, 36, had logged about 80 jumps. He was wearing a conventional rig with a Strong Enterprises Pop-Top reserve equipped with a plastic ripcord handle. Green followed three other jumpers out of the aircraft and opened at a normal altitude, according to Nancy Dywer, who was on the load.

Green's main opened into a line-over malfunction, and he quickly cut away. Witnesses in the air said Green appeared to try to pull the reserve ripcord until impact. Examination of his gear showed that the top pin of his reserve was clear of the locking loop and the handle was broken off the end of the cable. The possibility exists that the handle broke on impact, although Dywer thinks it broke when Green pulled his reserve soon after breaking away.

The accident, which is under investigation by the USPA, focuses additional attention on the plastic reserve ripcord handle.

According to Mike Johnston, president of the Jump Shack in Farmington Hills, Mich., at least four different plastic reserve ripcord handles are in use in the United States. All types have reportedly failed in actual use, although the accident described above is the only known fatality.

The Jump Shack has sold about 10,000 handles molded from a form of Nylon called Zytel. Johnston admits that the handle, like anything made of plastic, is subject to unknown changes through time, changes which make the handle more likely to break. His company recommends that jumpers inspect their plastic ripcords before each jump by twisting them in their pockets.

The Relative Workshop installed several hundred Zytel handles on Wonderhogs it shipped in early 1979. The company decided recently to replace those handles (*Skydiving, Issue #9*) if they are returned to the Relative Workshop with certain required information such as the serial number of the rig from which they were removed. Johnston feels such a recall program is "over-reaction at this time," as he thinks regular inspections will prevent any problems.

Another commonly seen plastic ripcord is made from fiberglass and usually has a flat cross section and a translucent appearance. Johnston told *Skydiving* that the Jump Shack has sold "a lot of Zytel handles to Canadian jumpers who broke their fiberglass ones in the cold weather." He added that his company tested this type of handle when it was first introduced and rejected it because "about 25% of the fiberglass handles failed when pull-tested with relatively low forces." FAA TSO standards require that a ripcord assembly withstand at least a 300-pound pull test.

Lexan, a synthetic used in crash helmets and other abusive environments, has also been used for ripcords,

but Johnston says the material is the least acceptable of those used so far.

As a result of the few cases of failure of the Zytel handles, the Jump Shack has purchased the machinery necessary to build metal ripcord handles. It is designing a model especially for sport use, one that will fit more snugly in an elastic pocket and be easier to grip.

The most popular metal handle these days is the Martin-Baker model. Originally used on military ejection seats, the handle has been in short supply lately on the surplus market, although a company in the South makes new copies for the sport industry.

Johnston said that metal handles weigh only about an ounce more than plastic ones but cost "about ten times as much."

Several equipment manufacturers have been reluctant to discuss plastic ripcords. Most spokesman continue to

claim their particular model is entirely suitable for use in reserve parachutes if it is inspected frequently. But one spokesman of a company that has sold thousands of plastic ripcords pointed out that "even the best plastic handle is inadequate."

It is likely that the industry will actively investigate the situation and perhaps the USPA will speak out against their use. (The organization discourages the use of the anti-windblast handle.) But until the studies are completed, and regardless of their conclusions, it is likely that many jumpers will switch to metal handles on their reserves. Since metal handles by far have the best record for working every time they're pulled, regardless of their age or the ambient temperature, most jumpers will make the switch simply for peace of mind.

Jumper Hits Tail of DC-3; Dies

A jumper was killed in early April at Zephyrhills, Fla., when his head struck the horizontal stabilizer of a DC-3 immediately after exit.

Hernando Lee Ferreira was visiting the drop zone from Brazil. He had been there two weeks and had made numerous jumps from the DC-3. Investigation of the accident revealed that several circumstances contributed to the cause of the fatality.

Ferreira was making a night jump, exiting while the aircraft made a climbing pass over the drop zone during its climb to altitude. Thus, the engines

were developing normal climbing power, the tail was slightly low and the airspeed was about ninety knots. The jumper was third out, following the other two at an interval of about seven seconds as no relative work was planned.

Rather than diving out the door, witnesses on board the aircraft made a "very vigorous" student exit by launching himself in a head-high position facing the front of the aircraft. He was about 6 feet tall and weighed about 150 lbs. and was wearing a big jumpsuit.

The other jumpers on board heard

(please turn the page)

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1961 Sears & Roebuck white painter's overalls with hammer loop and belt cut off and a few strategic seams taken in makes you look really cool, man. Also keeps the dirt off your shirt and jeans.



1964 A skin-tight jumpsuit cuts down wind resistance, which is great for turning a style series. (And with the nifty double zippers, you can put your jumpsuit on *after* your boots and look really sharp all at once.)



1973 With the advent of relative work, jumpers begin to realize that falling fast is not always the hot tip. "Down and out" starts to mean more than just a rotten state of mind. Someone comes up with the revolutionary idea of putting small wings and flares on the arms and legs of jumpsuits. This turns out to be a good idea: it slows down your rate of fall a little and makes relative work easier.



1976 Little wings are a good idea, so bigger wings would seem to be a better idea. Your rate of fall is decreased more, but a bigger wing can make big problems. A little reach can mean a big bobble. Fluttering and flapping wings means your flying won't be as smooth as it could be.



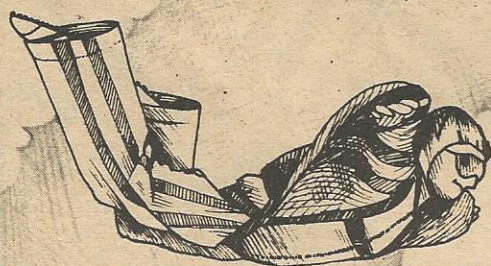
1978 Too much of a good thing. Too much wing can mean strange body positions are needed to compensate for erratic wing movements. Sometimes it feels as if the suit is flying you instead of the other way around. It means sacrificing control for a decreased rate of fall.



1980

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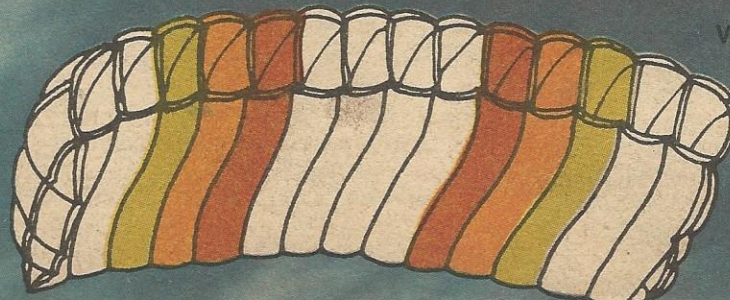
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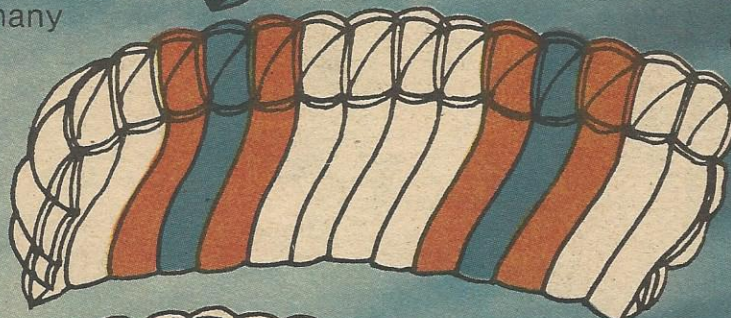
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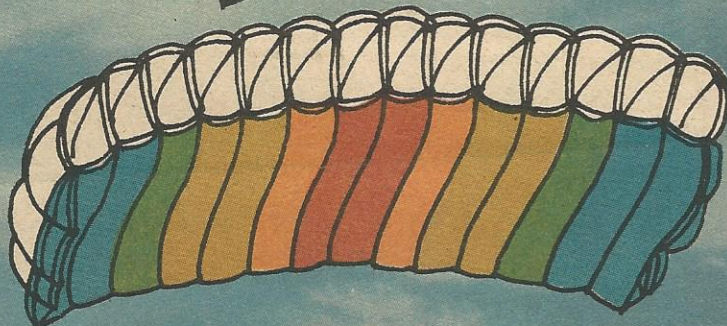
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Controversy Over Kevlar Line Grows

The introduction of Kevlar suspension lines by several canopy manufacturers plus a cautionary news release from Alan Levinson, president of GQ Security Parachute Company, is causing jumpers and riggers to take a careful look at the new line. While Kevlar suspension lines substantially reduce the weight and bulk of a packed parachute, they aren't as durable as those made of Nylon or Dacron. So jumpers are attracted to the lines but worried about their safety and durability.

The situation is clouded by conflicting claims and reports from the various manufacturers. There are also several types of Kevlar suspension line now in use, each with its own different properties.

It helps to know a little about Kevlar before delving into its suitability for use on parachutes. Like Nylon and Dacron (two popular materials used for suspension lines on sport parachutes), Kevlar is a man-made fiber first introduced by the DuPont corporation. A fiber of Kevlar several times stronger than a fiber of Nylon or Dacron of the same diameter, approaching the strength of fine steel. And although the other two synthetics will stretch to 20-30% of their original length, Kevlar essentially won't stretch at all. Nylon and Dacron both melt at about 400 degrees F, but Kevlar can withstand temperatures of about twice that before it begins to burn; it doesn't melt.

Because Kevlar is so strong on a pound-for-pound basis, it has found several uses in the aerospace and tire industries. Some tires have Kevlar cord

construction. Kevlar is also being used to fabricate structural parts of aircraft and missiles, such as nose cones, fuselage panels and control surfaces where strength and weight are important.

Kevlar is also used in a variety of parachutes such as high-speed drogue, recovery and cargo canopies. (Not only do some of these canopies have Kevlar lines, but some also have Kevlar fabric.)

Early experience

The sport parachute industry in the United States has some experience with Kevlar. North American Aerodynamics of Flemington, N.J., sold a few Para-Foils with suspension lines that had Kevlar cores and Nylon sheaths. The lines weren't that much smaller than the Dacron lines of the competition, and it was discovered the Nylon sheathing tended to be destroyed by the grommets or rings of the sliders. NAA stopped shipping the canopies with the hybrid line and ended up replacing some line sets to keep its customers happy.

Steinthal Corporation, which went bankrupt and was liquidated last year, built a few prototype ram-air with pure Kevlar lines in 1977. The lines were small and strong, but there were instances of lines breaking during deployment.

In 1979 Mike Cerasoli of Sky Supplies in DeLand, Fla., found a supplier of a small diameter Kevlar line that was rated at 400 pounds, similar in strength to some of the smaller Dacron line in wide use today. He re-lined his GQ Security Unit with the line and put

about 300 jumps on the canopy with good results, breaking a line once when a deployment brake released prematurely. GQ Security became interested in the line when it learned of Cerasoli's experiment and built several Units with the line and loaned them to jumpers in Northern California.

The results of GQ Security's evaluation made the company conclude the line was acceptable for use on main canopies, but that it would be sold with hesitation. The company was concerned about the durability of the line which it installs on Units as an extra-cost option.

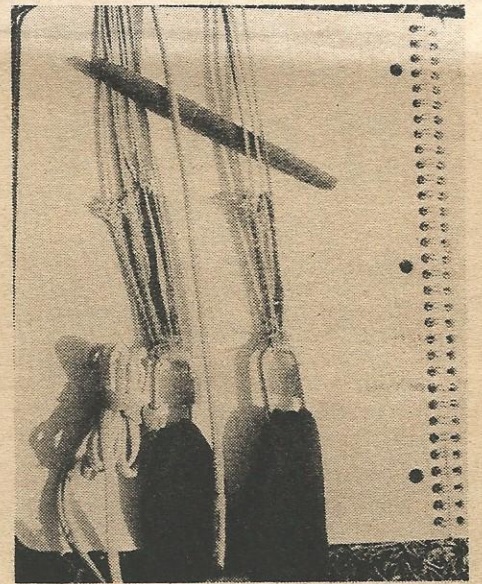
Durability

Durability is Kevlar's biggest disadvantage. It is more susceptible to damage from abrasion, and a nicked slider grommet or rough concrete can seriously fray the lines quickly. Impregnating Kevlar with resin and other additives increases its abrasion resistance substantially. (Nylon and Dacron lines and webbing is usually treated in some way to increase its abrasion resistance and make them easier to sew.)

The president of GQ Security, Alan Levinson, recently circulated an emphatically worded bulletin that advised jumpers and riggers to give Kevlar extra-special care. He feels the line isn't suitable for use on round canopies, because the designs of most round reserves rely on the stretch of their suspension lines to absorb much of the opening shock. (At least one major manufacturer, however, has built a Kevlar-lined round canopy. Early tests of the parachute, which has a deployment diaper, have been encouraging.) Levinson also reminded jumpers to inspect the grommets of their sliders regularly and use fire sandpaper to remove any nicks or burrs. Putting slider stops above the connector links will help prevent damage to the grommets, he added.

Levinson also pointed out that Kevlar's relatively low abrasion resistance makes the line unsuitable for use for lower control lines that pass through rings on the risers. Daisy-chaining Kevlar line to set deployment brakes is also a good way to fray it very quickly.

Levinson is convinced that only canopy manufacturers should install Kevlar suspension lines. He said that because Kevlar is so thin, it cannot be effectively finger-trapped and is difficult to sew with a zig-zag stitch. Levin-



The suspension lines of a Pioneer Merlin. Note how much smaller the 400-pound Kevlar line is compared to the Dacron steering lines.

son is concerned that malfunctions and possibly injuries will result from improperly designed or installed Kevlar suspension lines.

Current applications

Another company, however, seems more optimistic about the use of Kevlar. Pioneer Parachute Company of Manchester, Conn., has produced several Merlins and Kestrel canopies with Kevlar lines. The line appears to be made of finer fibers than that used by GQ Security, and Pioneer has been successful in finger-trapping it and sewing it with Kevlar thread. One Kevlar Merlin has at least 100 jumps on it.

And Advanced Air Sports of Elsinore, Calif., sells its Paradactyl main canopy with Kevlar lines. The Paradactyl is a Rogallo wing canopy, and the company is confident that the Kevlar lines are acceptable.

But GQ Security circulated a bulletin to its dealers dated April 23 which described reports of Kevlar Units that had suffered severe damage, including multiple suspension line failures and "blown up" canopies. The company is still offering the line as an option on the Unit canopy, but is not actively pushing it, according to an employee of the company.

The staff of Skydiving has jumped several canopies that have been lined with Kevlar: the Unit, Merlin, Kestrel and Paradactyl. The packed bulk of these canopies is substantially less than that of the same canopies lined with Dacron. The weight reduction is also

(continued on page 26)

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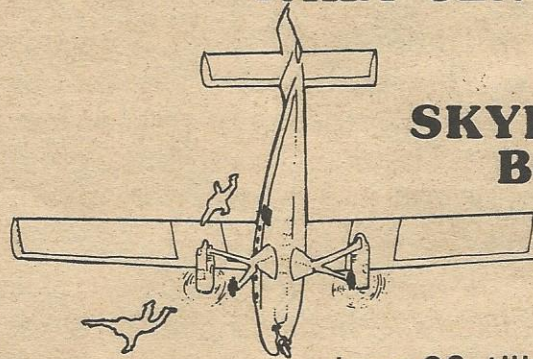
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USPA Board Meeting

donations to the U.S. team fund are insufficient to cover those expenses. After much debate in a full board session, the proposal was approved.

Executive Committee

Tony Fugit was appointed as U.S. team leader for the 1980 U.S. team, and B.J. Worth was named as head of delegation for the team.

The word "finances" was deleted from the constitution and bylaws sentence reading, USPA traditionally selects and finances teams to represent the U.S..."

Membership and Development

USPA membership requirements for affiliated centers were changed. Students, who were formerly required to join USPA by the time they had 15 jumps, must now join the organization by the time of their first freefall. Transient jumpers, who used to have a grace period of 30 days to join USPA, must now join immediately when they visit an affiliated DZ.

The PEIA was provided with \$1,000 for advertising campaigns.

National Collegiate Parachuting League

A new scoring system, based on a ten-point system drawn up by Bill Jones, was adopted by the NCPL. The new system will allow relative workers to be eligible for the Istel scholarship awarded to the top collegiate competitor each year. Previously, only style and accuracy competitors could receive the award.

Nationals

Over 15,000 gallons of avgas was purchased by the Nationals committee in March, thereby ensuring enough fuel for this summer's competition. Additionally, the fuel was purchased at a price lower than it will be during the summer.

Nationals Director Jack Bergman reported that the high cost of fuel would result in substantial increases in jump rates for competitors. Forecasted boogie prices for jumps from 12,500 feet would be "at least 12 bucks," he said.

Safety and Training

In addition to its action on the El Capitan and CRW issues, the committee issued a waiver to Ken Coleman and the DeLand, Fla, drop zone for their free-fall first jump course. The program, consisting of jumps from 9,500 feet with two instructors maintaining handholds on each side of a student, is showing a lot of promise, according to Coleman, who oversees the operation.

"We originally thought this method was applicable only to exceptional students—now I think it's even more applicable to not-so-exceptional students," said Coleman. "And we're finding students learn more with this system in six jumps than they do in the conventional way with 24."

Strong Enterprises, Embury Sky Systems, and the Jump Shack presented student tandem systems for the committee's perusal. All three companies are putting substantial amounts of research and development funds into their respective projects. Strong and Embury both have S.O.S. (single-operation-systems) on their rigs, while the Jump Shack does not. In explaining the reason for his company's retention of independent cutaway and reserve pull actions, Mike Johnston said, "Based on research we have conducted, we felt that we had to insure riser separation before reserve deployment."

A study on hand-deployed pilot chutes and their relationship to parachuting fatalities has not yet been completed, according to project chief Joe Svec, who said several manufacturers of hand deployed systems have been reluctant to cooperate with him. Svec intends to travel to Washington, D.C., in May to study USPA's fatality reports for the past several years. ●

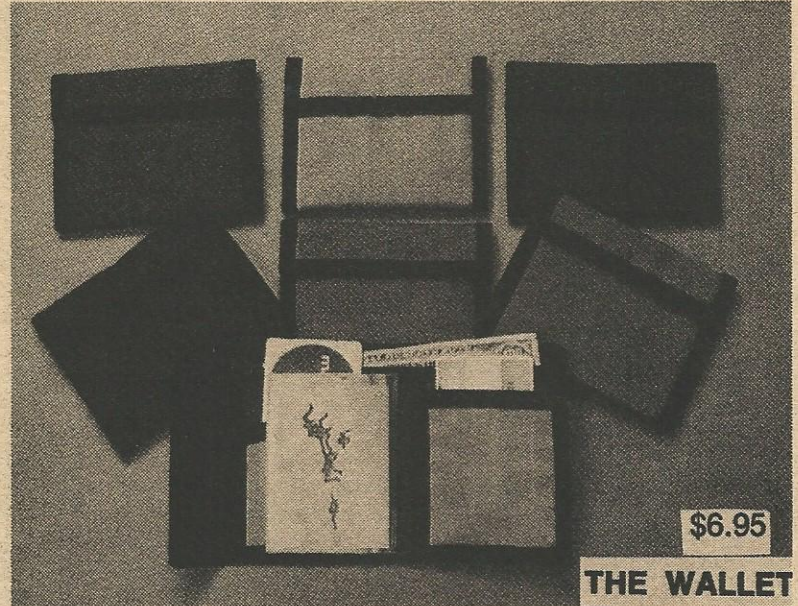
'Sky Dive' Wins Award

The film "Sky Dive" by Carl Boenish was named the best documentary film entered in the Sacramento (Calif.) Film Festival. The movie, which was filmed, edited and produced by Boenish, was called "heart stopping" by the Sacramento Bee newspaper.

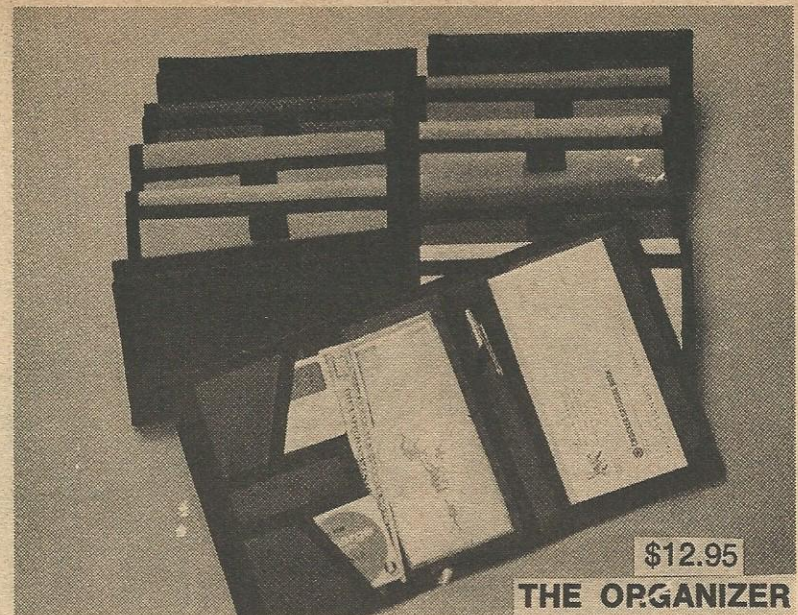


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Zephyrhills

ago that big round stars were easier if no one wore jumpsuits. The discovery came during RW training dives he was leading, dives during which the jumpers were to become familiar with flying their bodies without the influence of a jumpsuit.

Since then, he's organized many big no-jumpsuit round stars, several of which built to 30-ways or larger.

Big star attempts usually fall victim to lost grips. The tension within the star simply becomes too great to hold, or the star begins to waffle and warp as it builds until it finally tears a grip apart.

But having the participants leave their jumpsuits on the ground results in stars that build very cleanly, with much less tension and little warping.

Spectators on the ground during last month's Easter Boogie were able to watch Landis' loads build several big "no suiters" during the week as the group worked to get the 20-way base built consistently. The stars were a treat to see: big, spindly, perfectly round and growing steadily.

Jumpers on the no-jumpsuit loads learned several lessons very quickly. Everyone found that flying without a jumpsuit was much easier than most expected. Exits tend to be less stable and control motions of the arms and legs have to be somewhat exaggerated. But flaring, stopping and tracking are still relatively the same.

In fact, many divers would flare too soon after swooping down to the star and have to re-enter a dive to get down to its level. Jumpers who flared at a

normal distance from the star found they could slow down to the star's speed very easily — early flaring was not necessary.

And entering a slot in a no-jumpsuit star is much easier than the same maneuver with a big suit. There is less turbulent air in the slot and the entering jumper has less difficulty flying smoothly to wrists. Still, straight-in approaches are required, and lightweight jumpers still ran the risk of flopping on someone's back if they relaxed in the slot while getting grips.

But doing relative work without jumpsuits did pose some problems. One was grips. Since only wrist grips were possible, entering jumpers with small hands sometimes found it difficult to get secure grips on thick wrists. And wrists are a smaller target than an arm encased in a jumpsuit, so careful hand placement was important.

Another potential problem is that terminal velocity is much higher without wearing a jumpsuit, especially compared to that of jumpers wearing today's big-winged suits. So the divers on Landis' loads who went out near the end of the line-up found that they had to track extremely long distances toward a star that was nearly straight down. And without a jumpsuit, some divers found it difficult to dive smoothly, as there was a tendency to buffet.

The faster terminal velocity shortens freefall times from a given altitude considerably. It also makes tracking for separation at pull time less effective. Opening shock is noticeably harder; several canopies have been damaged during opening after a no-jumpsuit dive at Zephyrhills.

Most jumpers on the no-suiters loads last Easter wore jeans and anything from t-shirts to jackets up top. A few wore only shorts and a t-shirt, although wearing long pants made diving a little more easier, apparently by providing some drag on the legs. Watches, wrist-mounted altimeters and long-sleeved garments were prohibited because they might interfere with grips.

The 36-man was organized around a base of about 20 with the remaining 20 jumpers being assigned to quadrants around the star. The final 20 were to begin closing on the star only after the base 20 was built and flying smoothly, and then these last jumpers were to enter in an assigned order from each quadrant. Specific slots weren't assigned; a jumper could close on any set of wrists from his quadrant as long as he made a straight-in approach.

The record jump was an international load, as jumpers from several European countries and Canada joined those from a big variety of states.

The 36-way built smoothly and cleanly, waffling gently at times but never in trouble. It — understandably — looked huge from both the air and the ground in the late afternoon, as its diameter approached 50 feet. The star broke at 4,500 feet when a grip was lost, as tension was great in spite of the advantage of not wearing suits.

The startling success of the no-jumpsuit dives convinced many that today's big jumpsuits might be hindering smooth skydiving instead of helping it. Although no one seems to be advocating that relative workers go back to the skinny suits that were common ten years ago, some feel that smaller suits would aid freefall accomplishment. (It is interesting to note that it is nearly impossible to "go below" on a no-suiters. Heavier jumpers seemed to have it much easier than they would have on a jumpsuit load.)

Impressive as the 36-way is, it is not an official world record. Official world records are those recognized by the International Aeronautical Federation (FAI) in Paris, and official recognition requires that the participants follow strict procedures for registration, observation and certification of the attempt.

Participants in the 36-star included David Janscar, Fla.; Berry Abby, Minn.; Tony Uragallo, England; Lew Sandborn, Fla.; Steve Anderson, Minn.; Bobby Gray, Fla.; Carl Daugherty, Fla.; Mike Cerasoli, Fla.; Mike Truffer, Fla.; Hoot Gibson, Fla.; Ron Johnson, Fla.; Richard Fenimore, N.J.; Jerry Madison, Ind.; Jay Augustine, Ind.; al Madison, Ind.; Dan Hubert, Belgium; Peter Gabriel, N.M.; Ted Taft, Mass.; Steve Peterson, Colo.; Karl Arneberg, Norway; Eric Bradley, Canada; Joan Murphy, Md.; J.M. Mondoux, Canada; Peter Gehrig, Switzerland; Paul Berger, Norway; Roland Hilfiker, Switzerland; Dan Landis, Mont.; Bill Brandon, Iowa; Ray Finneran, N.Y.; Mitch Decoteau, Mont.; Greg Worth, Minn.; Harvey Soss, Penn.; Roger Ponce de Leon, Conn.; Glen Koopman, Minn.; Mike Lewis, Fla.; Paul Hansen, Norway; and the members of a German 4-way team, whose names weren't available.

Thirty-six of the participants were in the star when the grip was lost. Photos taken by Randy Quiroz of Florida showed that the star was held for a few seconds and broke about the same time as the 37th skydiver was breaking grips.

So the current world record largest star remains a 32-man, built over Tahlequah, Okla., in July, 1975. The attempt was organized by Al Krueger and Jerry Bird.

Until the Zephyrhills star, the biggest unofficial star was the 33-man as mentioned earlier. Both the 33- and 36-way stars are claimed as unofficial records because photos were taken of each. As some say, they're records by "California rules," since California jumpers pioneered big-star RW and built most of the large stars built until this year.

CRW record set

CRW jumps were planned for late afternoons of the boogie to take advantage of the smoother air and less congested airspace. The 11-stack built during the Easter Boogie is the largest stack built to date. A 12-plane was built over Richmond, Ind., last summer, but the Zephyrhills stack is noteworthy because stacks are considered to be less stable and therefore more difficult to build.

The 11-stack was held for about 30 seconds, short of the minute minimum required for an unofficial record, but the 10-stack that preceded it was for about 1½ minutes. (The FAI won't recognize CRW accomplishments as official world records until next year.)

Impressive as they were, the big rounds and stacks were only highlights of the Easter Boogie, not the focal point. The main focus was fun and renewing acquaintances that the long winter had put on ice.

A typical DC-3 load at the event would haul three to five separate groups

(continued on the next page)



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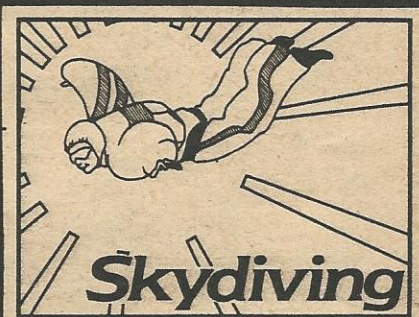
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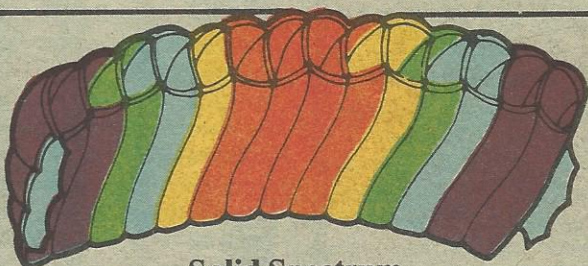
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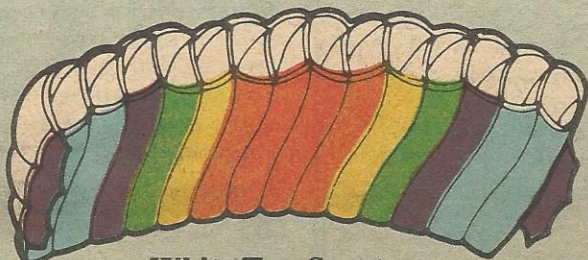
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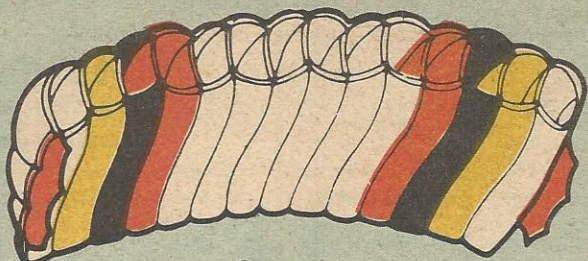
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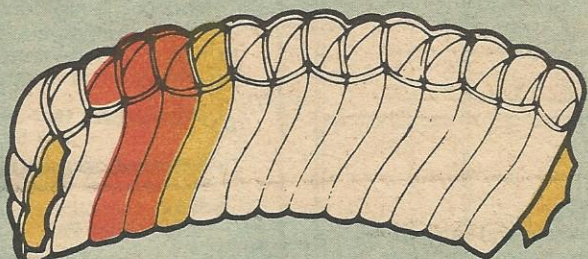
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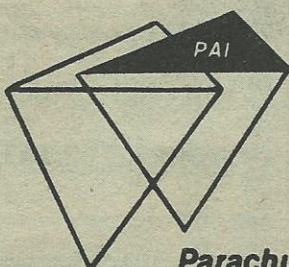
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Kevlar

(continued from page 8)

impressive; a 7-cell canopy loses about a pound with Kevlar lines.

The Kevlar Kestrel broke a line on the 22nd jump on the canopy. As a result of this failure, Jim Mowrey of Pioneer Parachute Company said he doubts his company will sell Kevlar-lined canopies until further tests have been completed.

Mowrey's position seems to be the most prudent at this time. Although Kevlar appears to have great potential in sport parachuting, canopy manufacturers do not have the confidence in the line. All the companies named in this article said they are still actively investigating Kevlar and better ways to use it. With the exception of Advanced Air, all seemed reluctant to push the line.

And one FAA Master Rigger told Skydiving he wished the canopy manufacturers would "loosen up a little" regarding Kevlar. He thinks they should tell riggers how to repair and replace Kevlar suspension lines and make lengths of it available for such repairs.

Summing it up, Kevlar offers substantial weight and bulk savings compared to Nylon or Dacron of the same tensile strength. But the science of using it on today's sport parachutes hasn't been refined to the point where Kevlar-lined canopies can be expected to be as trouble-free as more conventional lines. Until the manufacturers figure out how to take advantage of Kevlar's high performance characteristics, jumpers should regard the line as unproven.

In other words, expect your small-packing canopy to break a line every once in a while.

How Much Weight Does Kevlar Save?

Sean Collins of Moscow, Id., is a rigger who currently offers Kevlar lines on a retrofit basis for practically any canopy. He told *Skydiving* that "I cannot guarantee the line as to suitability for this use, or make promises of performance. But it does show great potential." He charges between \$55 and \$75 per installation, the lower price for a 5-cell canopy with 500 lb. line and the higher one for a 7-cell rigged with 800 lb. Kevlar.

Collins also said that the 800 lb. line is preferred for longer service life. But 800 lb. Kevlar isn't much smaller than common 450 lb. Dacron, so a jumper wouldn't be getting much by switching to the heavier Kevlar.

Collins agreed with Levinson that the grommets of the slider must be free of

nicks and burrs. He recommends nickel-plated grommets, since they are more resistant to damage.

And, according to Collins, opening shock is slightly higher because of Kevlar's no-stretch properties. He said packing methods may have to be revised.

How much weight can Kevlar save? Collins compiled the following data by weighing actual line samples:

TOTAL LINE WEIGHT

(Typical 7-cell, 3-line rigging)

Type Line	oz.	lb.
750# Dacron	34.5	2.16
450# Dacron	28.3	1.77
800# Kevlar	13.8	0.86
400# Kevlar	7.5	0.47

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Georgia Parachute Council Holds First Meet

Over 130 competitors from many Southern states and as far away as Indiana attended the Georgia Parachute Council's 1980 Spring Meet near Atlanta last March, and most agreed the two-day affair was a startling success. Although the format of the competition and organization was conventional, several innovations by the meet planners showed the region's jumpers that local meets can be inexpensive yet well run, and informal but competitive.

The council was reformed last January after several years of inactivity. Steve Chalfant and George Galloway talked up the council and called the first meeting where plans were made for the rest of the year.

The council will run three meets this year. Besides the one last March, a meet will be held in Rome, Ga., in mid-June and another in September at a site yet to be announced. The primary purpose of the meets are to provide a stimulus for jumpers to travel, compete and "mingle."

Picking the events

The council's officer's biggest decision was selecting the events for the three meets. The events had to reflect the interests of today's jumpers while still being "judgeable" and therefore fairly conventional.

The officers settled on 4-way sequential RW, 4-way CRW, 10-way speed

stars and accuracy. Style was dropped because few jumpers in the area do it, in spite of the fact it is a world-level event. Conversely, CRW isn't even a national-level event, but the council included it because of its growing popularity.

Determining experience categories for each event was a parallel task with picking the events themselves. Any local meet will be better attended if it is able to draw the less experienced jumpers who also have an interest in honing their skills through competition. The council felt that these jumpers would be most likely to attend their meets if they felt they would be competing against their skydiving peers and not against highly experienced "skygods."

So the council split the 4-way RW event into three categories based on the total number of jumps of the members of each team. For example, if the four jumpers on a team had a combined total of 1600 jumps, the team would enter the intermediate category. (A team, however, could enter a higher bracket if it so desired.)

Accuracy was also split into three categories, while the CRW and 10-way events were not broken.

Other factors besides the selection of events played an important role in the meet's eventual success. The date, site and other details were chosen and announced well in advance, making adequate publicity easier. Adequate notice

also gives teams the opportunity to practice and make travel plans.

The meet was hosted by the Greene County Parachute Center of Atlanta, managed by Ralph Hartman. The Greene County organization has drop zones in many states in the East and has a reputation for supporting competitive parachuting. Hartman's center is no different.

Fees and prizes

Entry fees and prizes were also carefully considered. The council operates on a non-profit basis and decided to avoid the temptation to try to make money off the meet. According to one of its officers, "Our goal is to promote competition and greater interaction among skydivers, not make money." This philosophy resulted in a meet where the total entry fee was very low: \$5 per competitor plus the costs of the jumps at everyday prices.

While low entry fees allowed as many jumpers as possible to afford entering the meet, it also meant that prizes would not be lavish. The council selected mugs and medals that were awarded to the first- and second-place finishers in all events. Some winners did grumble about the awards, but the alternative — higher entry fees — would have made other participants bitch.

(Prize-oriented jumpers might consider the alternative of running a winner-take-all voluntary pool where competitors who want to compete for higher stakes can put some money down before the meet and take their chances.)

The competition

With a solid foundation in place, the meet went very well. The weather cooperated on Saturday and Sunday, although it was crummy on Friday, the official practice day.

The meet progressed very well, especially considering that the meet staff essentially had not worked together before. Three Cessna 180s provided the lift for 4-way RW and accuracy, with two Twin Beeches used for CRW and

10-way. (The Twin Beeches hauled some teams at their option in the 4-way RW event, too. Such aircraft flexibility helped the meet director keep things going.)

Another 4-place Cessna seemed to be needed, however, as the meet's pace was essentially limited by aircraft. Most of the sequential jumpers, however, appreciated the slower pace as it gave them time to dirt dive.

Judging was done through telemeters. The U.S. Army Parachute Team provided considerable administrative and judging support, including the team's ground-to-air video. But the video wasn't used for judging.

Local meets provide an excellent opportunity to try new twists to old events. When accuracy was locked up in a six-way tie for first after two of the rounds, the meet management decided to place two discs 24 inches apart, requiring a jumper try to hit each one with each foot. Tony Urogallo, a British jumper from Zephyrhills and member of the Symbiosis 8-way team, won the novel event by scoring six dead centers in four rounds — he got both discs on each of his last two jumps. He was jumping a Django Enterprises Pegasus.

Novice accuracy was also slightly different; it was a variation of the event that has been around for a long time: hit and run. The competitor tries to land as close to the target as possible, and the judges start a stopwatch when he touches down. The jumper then sprints to the disc; touching it stops the watch and gives him a score in seconds.

The event is attractive because it allows novices to compete even though they might land many yards from the pea gravel pit. Although disc-punching precision isn't required, close landings and careful planning are. (More than one jumper landed close to the target but downwind. It was next to impossible to drag the still-inflated round canopies

(continued on page 25)

South Dakota Skydivers Plan 14th Annual Meet

The South Dakota Skydivers will host their 14th annual meet July 19 and 20 near Sious Falls, S.D. Club President Kevin Falon told Skydiving that several events will be run, including individual accuracy in several classes, 4-way sequential RW and large star RW.

Falon said that July is the best time to jump in South Dakota, as winds are light and skies are clear. He added that the price of a jump from 7,500 at his club's drop zone is only \$2.50, although the rapidly rising cost of fuel might change this situation soon.

The meet has been held since 1964 and has attracted over 100 jumpers in some years. More information is available by writing P.O. Box 63, Sioux Falls, SD 57101.

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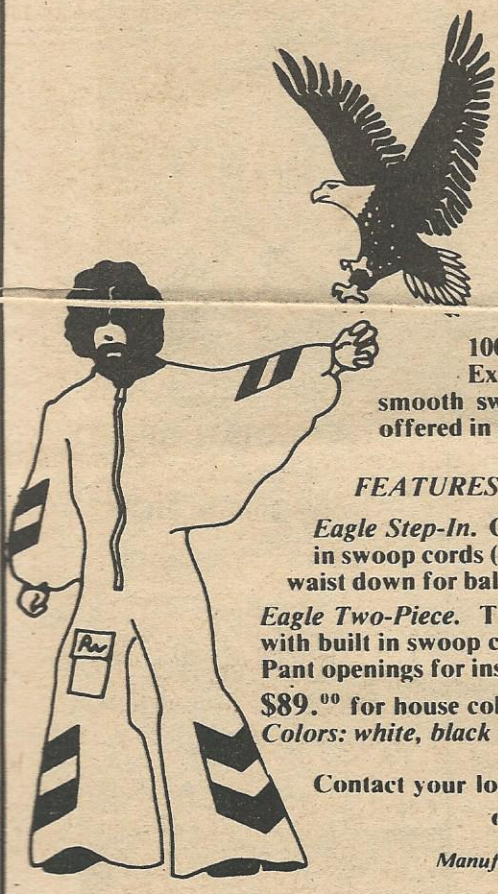
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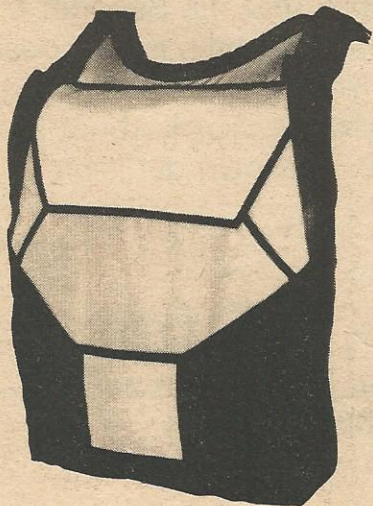
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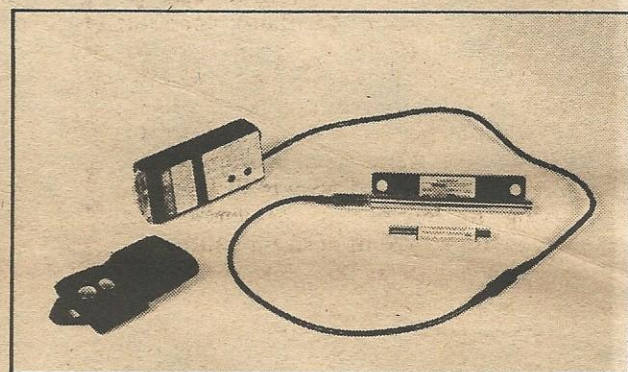
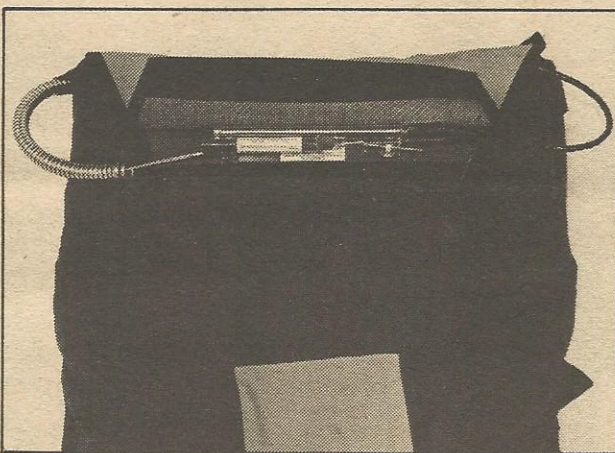
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to 12,500'; the average load seemed to consist of 12 to 16 parachutists. To conserve fuel and save time, the aircraft would drop more than one load per pass, with the jumpers insuring at least five seconds elapsed between groups. The procedure caused no apparent safety problems and spotting seemed to be as good (or as bad) as ever.

Other Requirements

One big formation was tried, a 49-way wedge. Organized by Allen Gencarelle of DeLand, Fla., the big blot was attempted from a DC-3 and Lockheed Lodestar flying in formation at 15,000 feet. This particular formation has never been built.

The Herd from United Parachute Club in Pennsylvania formed the core of the formation by laying the base, something the group has done for most of the big formations built on the East Coast. This time, however, the base never built past a 9- or 10-way as it repeatedly fell apart. (The Herd has offered themselves to organizers as the "rent-a-base," but some participants in the 49-way disaster commented their latest effort earned them the title "rent-a-funnel.")

John Rowstack, or "Sox," from Canada organized a mystery dive that left all 32 of its participants beaming. Sox spent most of one afternoon designing the dive and writing out instructions for each participant. Since no one except Sox knew what the formation was to be, and since most people on the load had never jumped with one another, and since Sox didn't hand out the instructions until the group boarded the DC-3 for the sunset load, the dive lived up to its billing as a mystery dive. One participant said the climb to 15,000 feet went very quickly as the jumpers scrambled around the aircraft trying to locate and remember the people they were to dock on (still without knowing what the whole formation was supposed to be).

In spite of the frantic beginning, the dive went very well, as the formation was nearly completed. Sox had planned for a sequential dive, but that portion wasn't attempted.

Although several jumps were made from 15,000 feet, most groups exited at the "standard" 12,500 feet. Each jumper paid \$11 to get to the lower altitude and \$16 to 15 grand. Lower altitudes weren't available.

Four aircraft were on the line, but only two were available fulltime. The drop zone provided 40 Tango, its C-47 (a military version of the DC-3), while nearby DeLand furnished a DC-3 jumpers call Mr. Douglas. A third DC-3 was flown in from Louisiana, but it was used very little as it was not completely ready to haul jumpers on its arrival, as it lacked seat belts and in-date fire extinguishers. Lodestar was used heavily on the last few days of the Boogie after it initially sat on the ground waiting the arrival of its pilot.

The boogie was run very smoothly, in spite of the fact that it seemed to need more airlift capability for most of the long weekend.

Some jumpers tried to make as many jumps as possible and double manifested, signing up for several loads and hoping they wouldn't end up being called at the same time. Double manifesting caused problems as it held up the aircraft several times, but some jumpers defended their actions by saying the double manifesting is a natural reaction to a limited supply of aircraft.

Equipment

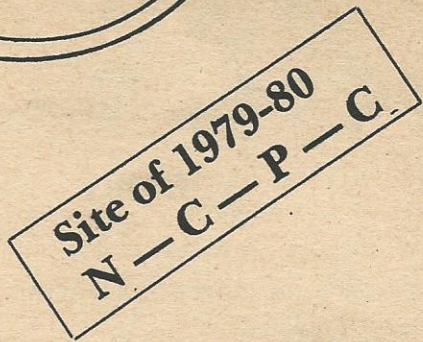
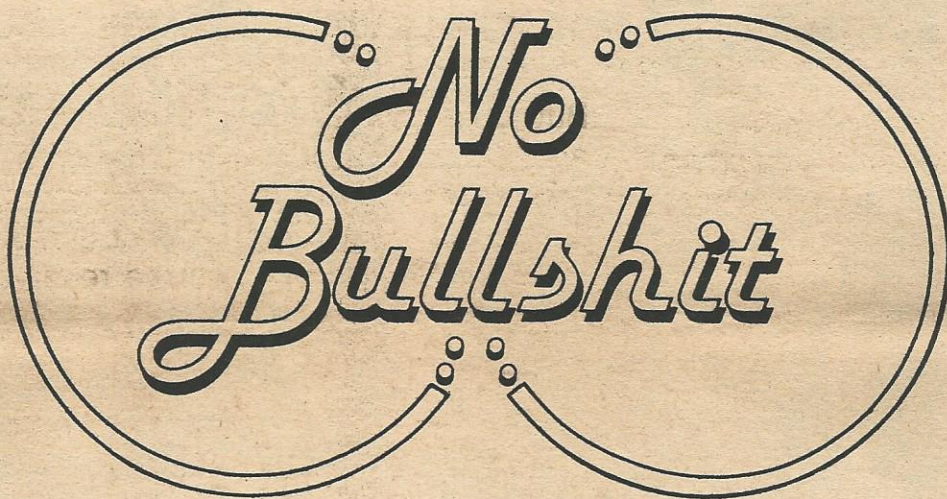
There were a few noteworthy equipment unveilings at the Zephyrhills Easter Boogie. Jim Mowrey of Pioneer Parachute Company loaned out several copies of his company's new 5-cell canopy called the Kestrel. The Kestrel has about 180 sq. ft., about the same as Para-Flite's out-of-production Strato-

Star, but is made from Harris F-111 fabric using low-bulk construction techniques. Mowrey had two versions on hand, one with conventional Dacron lines, the other with Kevlar. The Kevlar-lined canopy weighed 6¼ lbs.

Skydiving put about 15 jumps on each version of the Kestrel. The only apparent difference the line made was the Kevlar Kestrel packed much smaller. Each version opened, flew and landed well, with excellent forward speed, quick turns and nice landings. The Kestrel didn't "float" during the flare like some of the mid-size 7-cell canopies do, but its conventional flare resulted in soft landings for the 150-pound jumper. Toggle travel is from keeper to hip, longer than that of the mid-size 7-cells.

The Kevlar line on the Kestrel is different than that used by GQ Security on its Unit canopy. It has a finer braid and smaller diameter but is supposedly of

(continued on page 24)



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greater tensile strength. The Kestrel's lines were cascaded and finger-trapped, a method of rigging that produces a clean appearance but supposedly was difficult to do with Kevlar.

The Kestrel will not have the lightweight 5-cell market to itself, however, as Paramount, Inc., of Rockville, Md., offers a 6¾-pound 5-cell with Dacron lines. The canopy also uses Harris F-111 fabric, 3-Ring risers and is cross ported. The Para-Mount is available now for \$599, while the Pioneer Kestrel has a suggested retail price of \$685 with the first canopies scheduled to go to dealers in early May.

Para-Flite of Pennsauken, N.J., the biggest ram-air parachute company, is experimenting with several 5-cell designs, although it has not announced an availability date.

The Django Enterprises Pegasus, built by Mike Furry of Atlanta, is a

popular canopy in the Zephyrhills area. The Pegasus is a lightweight, low-bulk 7-cell of about 200 sq. ft. Although noticeably slower than the Para-Flite Cruisair, GQ Security Unit or Pioneer Merlin, its owners say they like its stability and suitability for accuracy.

The Relative Workshop of DeLand, and the Jump Shack of Farmington Hills, Mich., have refined their widely known rigs. Both the Wonderhog and the SST Racer received what seem to be mostly cosmetic changes to improve the appearance of the rigs, although each manufacturer is quick to point out that the changes are more than skin deep.

Sky Supplies, also of DeLand, promoted its Rapid Transit System at the boogie, a rig that will probably more commonly be referred to as the "Silly rig" after the nickname of its developer Mike Cerasoli. The Rapid

Transit System will compete head-on with the SST Racer and Wonderhog Sprint for the business of jumpers who want small, lightweight rigs. Sky Supplies decided not to pick sides in two of parachuting's controversies, the hand deploy vs. pull out vs. ripcord deploy pilot chute discussion and the 3-Ring vs. R-3 canopy release argument, as he offers the Rapid Transit System in practically any configuration the owner wants.

Jim Hooper, manager of the center, was surprised at the strength of the turnout; nearly twice as many jumpers registered this year as in 1979. The Easter Boogie is sort of an opening day for skydiving on the East Coast, and if this opening day is any indication of how the rest of the year will go, skydiving in 1980 might be better than many had predicted. ●

Golden Knights Romp in Pam Am Championships

The U.S. Army Team dominated the 1980 Pan American Parachuting Championships by winning every event of the meet in Cordoba, Argentina, in late April.

Maurice Fernandez won the overall title by averaging 7.19 seconds in style and scoring a perfect 0.00 total distance in accuracy. Mark Jones, Dwight Reynolds and Cliff Jones finished in the next three slots.

Cheryl Stearns earned the Women's Overall title with a 6.87 style average and a 0.00 accuracy total. Her performance was the best of the meet in either the men's or women's categories.

The Army Team also won the team accuracy event with all dead centers. Argentina was second and Brazil was third.

The relative work event was shortened by poor weather and only two rounds were completed. The Army's Golden Knights won the event by accumulating a 15-point lead over the runner-up team. The Army's 4-way team consists of Pat Van Bibber, Glenn Bangs, Andy Gerber and Bob Finn.

Pelicanland Opens

Pelicanland Drop Zone has reopened yet another time. The DZ, located on the eastern shore of Maryland near the town of Ridgely, has been alternately opened and closed as a succession of operators attempted to make a go of it.

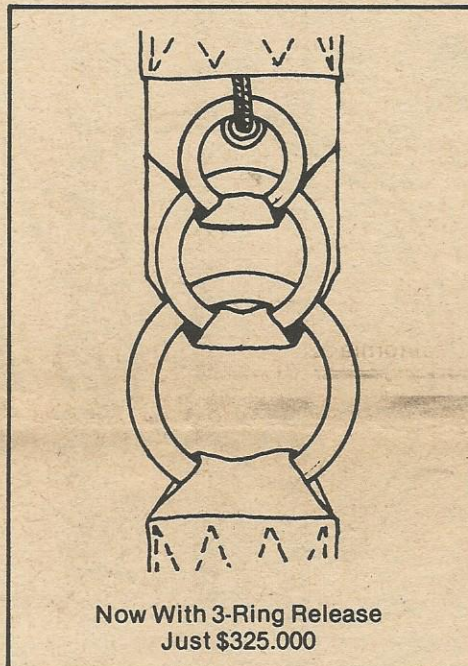
The latest operator is Gordon Riner, owner of Parachutes Are Fun, Inc. Riner, who has operated a DZ near Georgetown, Del., for several years, brought in a Cessna 182 and a Twin Beech to operate off of Pelicanland's sod runway.

The drop zone's new telephone number is (301) 634-2070.

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Georgia Meet

(continued from page 12)

upwind the target. Smart novices landed upwind and were ready to run as soon as they landed.)

The advanced category in the 4-way RW event was won by the U.S. Army's Golden Knights who scored 24 points on four jumps. The team consisted of Pat Van Bibber, Bob Finn, Andy Gerber, and Glenn Bangs.

Second place went to the Only Team from DeLand with 21 points. Its members were Mike Cerasoli, Karen Bruce, David Jancsar, and Mike Truffer.

Senior 4-way (500 to 2000 total jumps) was won by Bardstown, consisting to Larry Long, Scott Jorgan, Wayne Owens, and John Cheadle. In second was CHWOC: Dennis Hughes, Reid Bentley, Jim Kearns and Mike Cooper. Bardstown traveled from Kentucky to attend the meet, while DHWOC is from Atlanta.

Chinese Fire Drill from Atlanta won the novice 4-way event. Its members were Bruce Crawford, Jerry Harrard, James Lorrain and John Condon. No Pressure was second: Tom Walters, Les Hatfield, Lee Johnston and Chuck Cimarik.

The council did not provide complete standings for the accuracy event.

CRW was won by a Georgia team called Aptrex. Its members were Mike Fedak, James Warner, Larry Alvord and Mike Furry.

10-man was won by the Beach Bags, a team formed at the meet and consisting of Mike Truffer, Dave Jancsar, Karen Bruce, Mike Cerasoli, Van Widemann, Royce Wolfe, Craig Van Camp, Pat Van Bibber, Steve Chalfant, and Bonnie Chalfant. The team won the one-round event with a 21-second star, three

seconds faster than a team from Zephyrhills, Fla. (Names of individual members weren't available.) At least another round in 10-man would have been preferred, as it would have allowed consistency to play a role in the final results.

The council didn't throw a party on Saturday night. It wasn't really missed as jumpers managed to get together on their own with no problems.

The DZ was essentially closed to non-competitors during the two days of the meet. This also encouraged jumpers to enter the meet, as the alternative was remaining on the ground.

Greene County of Atlanta is a relatively small drop zone, offering a rolling grass runway, several trailers and outhouses. It's located in the country about 40 minutes from downtown Atlanta. It proved to be a fine site.

The significance of the Georgia Parachute Council's Spring Meet is that it was an excellent demonstration of how to plan and run a regional competition. Some jumpers have said that local meets are a thing of the past, that skydivers would rather go to boogies or big, extravagant meets.

Don't believe it. The Georgia Parachute Council knows it isn't true. ●



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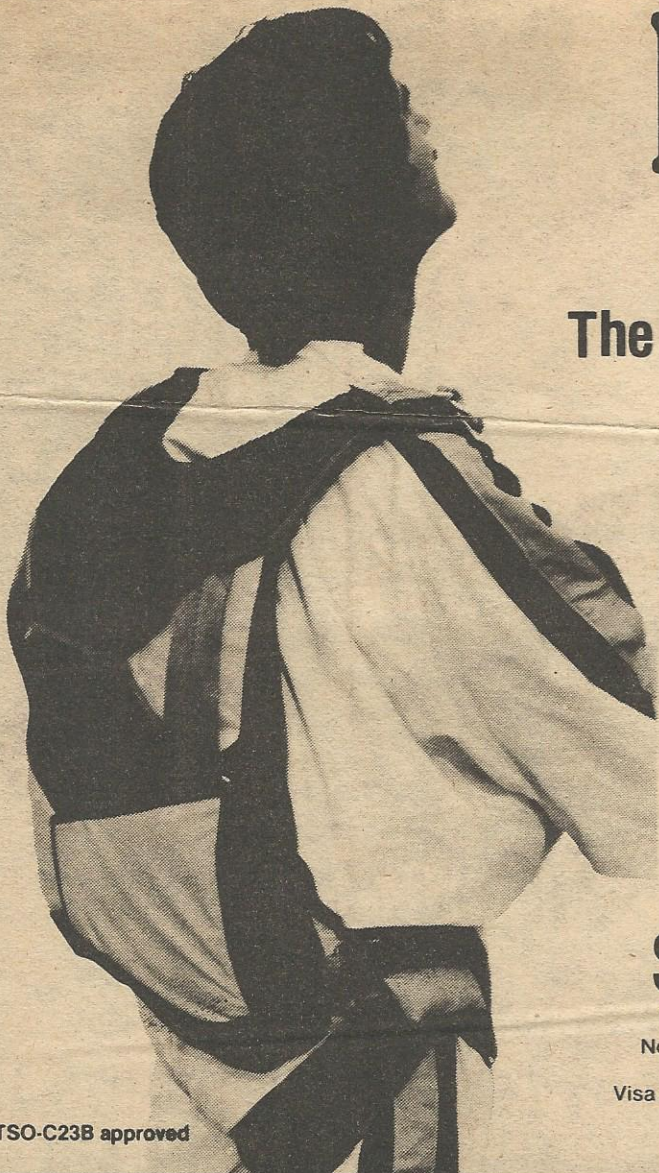
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USPA Board of Directors Meets

by Robin Heid

The United States Parachute Association held its spring board of directors on Easter weekend at the Hilton Hotel in Salt Lake City.

Among the accomplishments of the board were the passage of a resolution detailing the requirements for jumps from El Capitan, in Yosemite National Park and the drafting of a USPA doctrine for canopy relative work.

Southwest Conference Director Joe Svec, working with El Capitan jumpers and the National Park Service, presented a comprehensive document of proposed regulations and requirements for the cliff jumps after a weekend seminar was held on the subject during February (*Skydiving*, Issue #9).

His proposal met with some reservations by a few members of the USPA safety and training committee, but passed through the committee after provisions for USPA-administered issuance of permits was deleted. When presented to the board, the sanctioning resolution was approved with only one dissenting vote (Tony Fugit, national director).

The canopy relative work document, drafted by CRW enthusiasts Robin Heid and Tom Courbat, and Northwest Conference Director Rocky Kenoyer, passed easily. Discussion of the document, which listed equipment and experience requirements, and recommended engagement and safety procedures, was amicable, and the measure was accepted with minor amendments.

Deputy Executive Director Al King reported that the organization's new drop zone liability insurance program was progressing satisfactorily but described the rigger insurance program, open to senior riggers employed by affiliated centers and all master riggers, as getting off the ground slowly. King attributed this to lack of public information about the program.

Executive Director Bill Ottley announced the acquisition of member discounts for Hertz and National car rental companies, and reported membership holding steady at 16,000-17,000 despite significant increases in the number of affiliated drop zones, which should increase total membership figures.

Controversy erupted at the meeting when CIP Delegate B.J. Worth was fired by USPA President Scott Hamilton for altering the organization's bid for the 1981 RW world meet. Some board members questioned the necessity of such harsh action, but Hamilton defended the move as correct because, according to him, Worth "disobeyed a direct order" (to not change the bid).

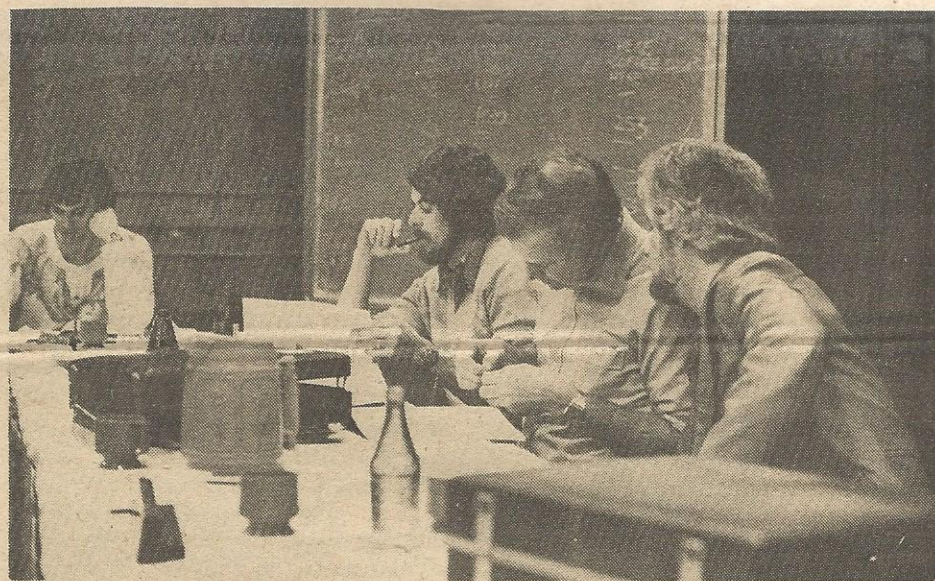
Competition Committee

A proposal to eliminate the women's division in style and accuracy was of-

fered as a solution to a problem which cropped up at last year's nationals, when Cheryl Stearns bested *all* style and accuracy competitors, yet did not receive recognition as the absolute overall champion. That measure was killed in favor of one that would retain the women's division, but ensure the absolute champion is recognized as such, regardless of the division the winner comes from.

Tony Fugit, 1980 U.S. team leader, moved that \$11,300 of USPA general funds be provided to the team for air fare and entry fees in the event that

(continued on page 18)



USPA Board of Directors meeting: long hours of discussion and debate. Photo by Robin Heid.

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