

soaring

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By **CECIL M. CRAIG**,
with Marion Barritt

"I think that the world distance record (presently 647 miles) will be broken by a flight utilizing the standing waves set off by the mountain ranges along the West Coast of the U.S.A."

This statement was made by Cecil M. Craig, Cost Recovery Manager of the Lockheed Shipbuilding Company in Seattle, Washington, an enthusiastic soaring pilot and owner of a Laister Kauffman 10A. A few forward thinking glider pilots have long realized the possibility of climbing in a standing wave over Mt. Rainier, then making a transition into the jet stream and flying

peaks), which divides Washington, Oregon, and California from north to south. The route would also pass over the second deepest lake in North America, Crater Lake, set in a crater formed several thousand years ago when the peak of the 12,000-ft. volcano, Mt. Mazama, collapsed during a violent eruption. Landing sites are none too plentiful over breathtaking scenery such as this. After passing 9500-ft. Mt. McLoughlin in Oregon, the final destination would be Weed airport, near California's 14,162-ft. Mt. Shasta.

The path to Cec's ambitious plans began 17 years ago when he earned his private power ticket and started exploring the fickle atmosphere conditions abounding in the scenic

ary 1966 that Bettyjean wrote an open letter to her husband in a local soaring publication; it ended thus: "I've found I don't mind too much that you and 'it' (LK) have taken over the hall closet to keep your wave flying equipment ready to go, and have supplied your children with checklists and your retrieve crew (alias wife) with instructions in preparation for the day. After being married 19 years, I'm still chasing you!"

The Day was still a long way off at that point. It was Wednesday, December 13th, 1967, before Cec recognized the necessary weather pattern shaping up. The winds aloft were generally from 05° and ranged in velocity from 13 knots at 3000 ft. to 90 knots at 30,000-ft. The north

Down the Cascade Range on a Wild Winter Wind

south to Mt. Adams, Mt. Hood, Mt. Jefferson, the Three Sisters, Mt. McLoughlin, and hopefully Mt. Shasta in California; but the trailblazer was Cec Craig, who had been prepared and waiting for 1123 days for the perfect time to make such a flight. Cec hoped that the high average speeds achievable in a downwind wave cross-country would add a distance Diamond to his Gold badge, already adorned with altitude and goal Diamonds earned in flights in his vintage LK, a 27-year-old W.W. II trainer.

Such a flight, to be in any degree successful and safe, can hardly be a "spur of the moment" undertaking. The journey would have to begin below the summit of the greatest single-peak glacial system in the U.S.—radiating from the summit and slopes of an ancient volcano, the perpetually snow-capped Mt. Rainier, the 14,410-ft. sentinel of the Cascade Mountain Range. Towering Douglas fir forests to the west of the range, and Ponderosa pine to the east, make the land ruggedly beautiful from on high. The flight path would follow the Cascade Range (averaging 6000 ft. at the crest, with higher individual

Northwest. Eight years ago, after logging 700 hours in land and sea-planes, his interest was wooed by the challenge of powerless flight. Flying a TG-3, he added a private glider rating June 3, 1961, later checked out in a flattop LK, and finally purchased his own ship in 1962.

Cec's entry into soaring was during a particularly adventuresome and exciting year. In 1961, Bob Fisher, in an attempt to beat the time of the first power flight across the U.S., departed Auburn, Washington, in his 1-23—and, 29 flights and 59 days later, landed at Long Island, N.Y. That same year Paul Bikle soared to 46,267 ft. in his 1-23 over Mojave, California, for a gain of 42,303 ft. and the world absolute altitude and altitude gain records. It was no wonder that Cec was inspired by the possibilities for adventure inherent in soaring; and it was fortunate that he, never a "free as you please, do as you want" youngster but a mature and considerate 44-year-old husband and father, was admired and encouraged in his thorough immersion in the sport by his wife Bettyjean and his four children. It was back in Febru-

wind blowing from Canada was producing a very dry air mass in the Northwest area, canceling out the possibility of moisture in the air that could form fog and prevent an early morning departure. Thursday's forecast indicated that exceedingly stable weather conditions would prevail. With such a winning weather combination, Mt. Rainier had to be generating a classic wave. A quick call to Linn Emrich, Seattle Skysports operator, finalized the plans. That evening Linn moved his Cessna towplane under shelter to prevent frost from forming on the wings. Two batteries were removed, fully charged, and stored in the warmth of his home to make sure that the plane would start in the crisp air of early morning.

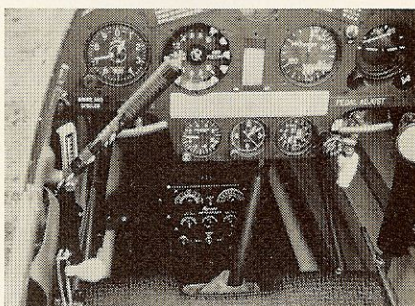
Cec was up at five the next day. The weather report was "GO"—winds were still from the north at very high velocities, and the jet stream was passing directly over Rainier and down the coast. After rousing his wife and son Robert and calling Bruce Morgan, who was going to assist them in crewing, they left the house at 6:30 and arrived at Enumclaw Airport an hour later. The LK was lowered from the



Photo by Jim Larsen

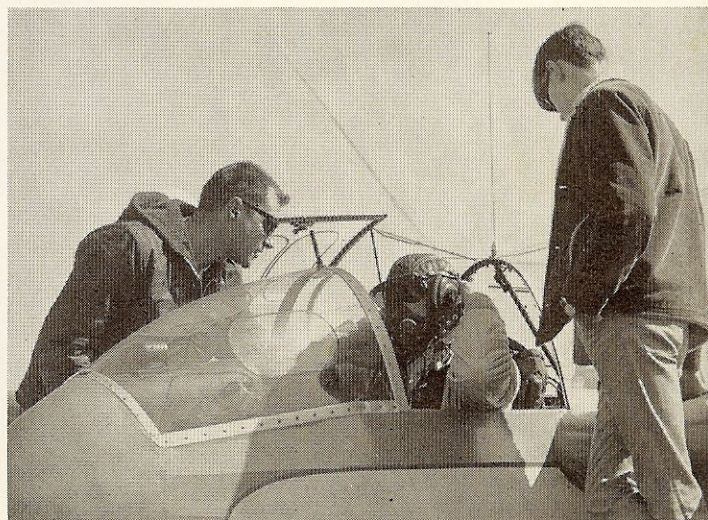
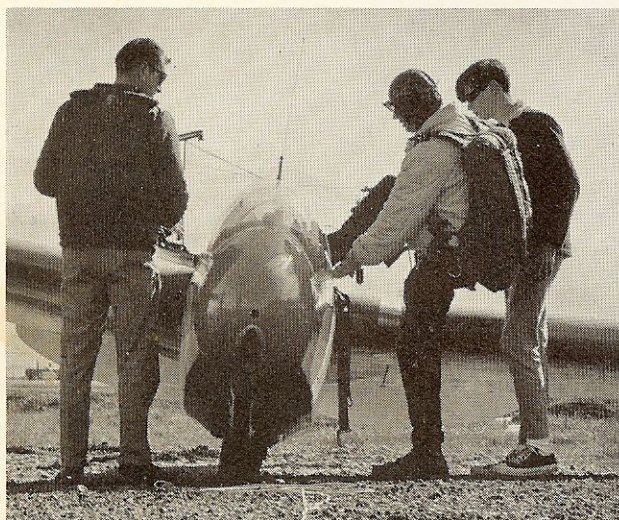


hangar ceiling with an electric hoist and rolled out to the flight line. There Cec donned his flight suit, electric socks and gloves, installed a freshly charged battery, two barographs (he was taking no chances on one failing), a sleeping bag and emergency kit containing food, flares, yellow smoke bombs, road maps of Washington, Oregon, California, and Idaho, animal snares,



compass, etc. Before the sun rose, the ship had been preflighted; the radio, oxygen, and tape recorder had been checked out; and pictures were taken of the lenticular formations near Mt. Rainier (at 8:30 there were seven distinct sets of lenticulars standing downwind of the mountain) and the forbidding looking roll cloud. As the sun advanced over the horizon, the breath-

Top (Larsen photo): Members of Craig's family and crew move his LK-10 into position for take-off, Mt. Rainier in the background. **Middle** (Cecil Craig photo): Close-up of the instrument panel; all equipment was installed by the pilot—including the rabbit's foot. **Bottom** (Larsen photos): Craig enters the cockpit (tow pilot Linn Emrich is on the left and Craig's son Robert on the right); then adjusts his oxygen mask just prior to take-off (note the panels on the canopy to prevent frost from forming inside at extremely low temperatures).

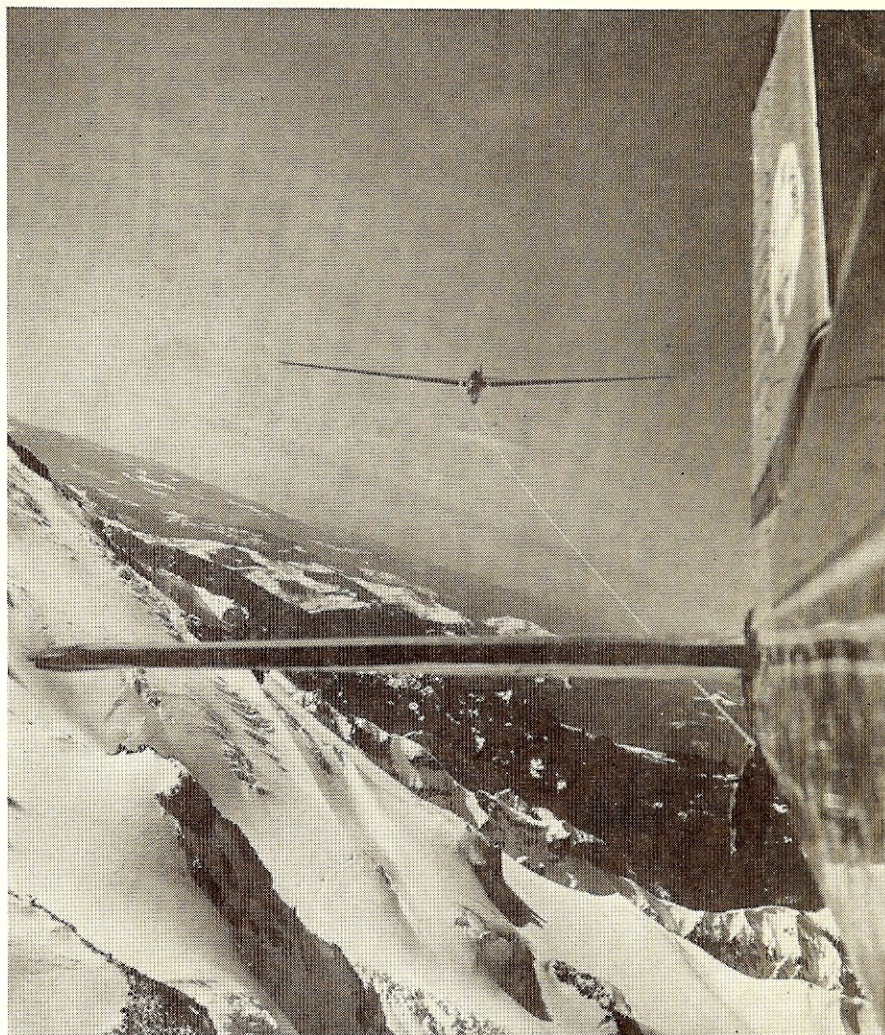


taking cloud display was bathed in rosy pink light.

To exceed Bob Moore's existing state goal and distance records with a flight to Weed, California, Cec couldn't release above 11,000 ft. due to the altitude penalty (30:1). Linn Emrich was a little skeptical about going into the lift area at that altitude, but finally agreed to do so. Take-off was at 8:54, and after a 20-minute flight they skirted Ptarmigan Ridge (on the northwest side of the mountain), entering between the rotor and the lenticular, without encountering any severe turbulence except for the brief expected shear turbulence, that helpful indicator always present as one makes the transition into smooth wave lift. The Rainier wave was working, but how! As the variometer started winding up, Cec grabbed for the release knob.

"I released at 11,000 ft. at 9:22. In smooth lift the variometer was pegged at 1000 fpm! It was unbelievable! I checked my actual rate of climb by starting my stop watch and noting that the altimeter needle was going around over two and one-half times for each time the sweep hand on the stop watch went around. Rate of climb was an exhilarating 2500+ fpm (later verified on the barograph), 30 miles per hour up! In less than two minutes I found myself at 15,500 ft. looking for Linn Emrich, who was to take pictures. I finally spotted him below me at about 12,500 ft. Realizing he would never catch me, I reluctantly pushed my airspeed up to 80 mph, extended my spoilers, and dove out of the wave to join Linn. Photographic session over, the LK climbed effortlessly back up past the rugged, snow-covered slopes. By the time I reached 30,000+ ft. (the barograph needle hit the stop at this point), I was flying at 55 mph indicated (true airspeed about 90), pointing north into the 90-mph wind, to maintain position. The outside air temperature at this altitude was -40°F, but I don't think it dropped below 0° inside; I was tolerably comfortable with my warm clothing, electric socks and gloves."

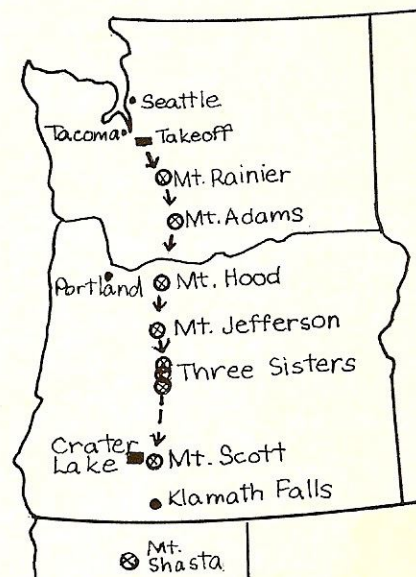
At 10:30, with 30,800 ft. in hand, the LK turned up its nose at the remaining 200-fpm lift, headed downwind, and dove at a speed Cec estimated would put him below 24,000 ft. before leaving the approved FAA glider area. (The glid-



Jim Larsen hung his body half way out the tailplane to make this shot.

er area is a pre-designated 50-mile diameter circle extending from the base of positive control to 45,000 ft.—no other aircraft are allowed in the area while a sailplane is present.) Averaging a fantastic ground speed of up to 135 mph, the LK arrived at 12,307-ft. Mt. Adams at 10:50 with 22,500 ft. Adams didn't appear to be kicking up a strong wave, and Cec had to work hard to climb back to the 24,000-ft. base of positive control.

"It was obvious the jet stream was giving us a boost; we averaged 134 mph ground speed between Mt. Adams and Mt. Hood, arriving there in 26 minutes at 20,500 ft. During 15 minutes of the dash between the two peaks, only 500 ft. was lost (glide angle between these peaks worked out to 87:1!); this experience left me wondering if I had unknowingly been trying a little dynamic soaring. It appears that descent through a shearing tail-



wind, where the wind speed increases with altitude, decreases the sink rate and glide angle.

"I continued south, leaving Hood at 12:10 with 22,500 ft. and arriving at Mt. Jefferson at 12:35 with 17,500

ft. Lift on Jefferson, a sharp conical type peak, was very weak and difficult to isolate; I spent 18 frustrating minutes attempting to work a very narrow, weak band of lift, seemingly only a few wingspans wide, by the time I finally gave up and departed, having gained a mere 200 ft."

The day was still young, and while Cec had not been able to gain expected altitude on Jefferson, he was full of confidence and high hopes as he neared his next stepping stones, the Three Sisters, the highest of which rises 10,358 ft.

"I arrived at the northernmost of the Three Sisters at 1:15 with a meager 9900 ft. and was greeted with a nasty 80-mph wind driving out of the east and blowing snow in furious bellows over the summit, creating heavy sink on the lee side. The wind above 12,000 ft. was still almost due north, and in my previous climbs over the Cascade peaks I had maintained a northerly heading. Now I found the wind had made almost a 90° change in direction and I was heading in an easterly direction in heavy sink.

"It would have been impossible to fight such a headwind while dashing for the closer valley to the east, so I took the only 'out' available; a steep turn to the west found me running for an emergency mountain airport about 15 miles away, previously plotted on my map for just such an occasion. With a ground speed of 150 mph, I kept an eagle eye on the variometer and hoped for that 'kick in the pants feeling,' knowing at that speed I'd pass through lift pretty quickly. My 'leftover' rabbit's foot (willed to me by previous LK-owner Richardson) and my bushy-haired Houdini doll, whom I always look to for decisions as he swings from the release knob, must have been emanating their good luck because I ran right into the elusive lift; it was further west of the peak than I had expected. I immediately chandelled sharply and, with the variometer pegged at 1000 fpm, I gleefully climbed again to 24,000 ft. over the southernmost Sister. When the lift dropped off to 200 fpm, I steered the LK downwind again."

Cec started his climb due west of the N. Sister, heading east, and finished—without ever leaving lift—on the south side of the S. Sister heading due north. This would

seem to indicate that waves can overlap one another—in this case from the east at lower altitudes, overlapped by a northerly flow at higher altitudes. After facing what was almost the end of his flight on the N. Sister, Cec was now feeling more cautious as he started his 87-mile glide to Mt. Scott on the east rim of Crater Lake. He expected to encounter the same strong, low-altitude, easterly flow and made plans to stay close to the west side of Mt. Scott and search for lift. If lift were not encountered, he would then turn west out over the 5-mile circular lake and pick the lift up as he had done over the Sisters. If this search went unrewarded, he planned to land on Crater Lake, which he expected would be frozen over at that time of year.

"It was 2:40 when I arrived at Mt. Scott on the east side of Crater Lake. Looking down, from what I considered a fairly comfortable cushion of 9000 ft. above the terrain, I saw that Crater Lake was far from frozen, but was a cauldron of wind-blown, white-capped water. At that point my intestinal fortitude and my plans to cross the lake in search of lift evaporated. I later found out that Crater Lake has frozen up only once in history."

At this point, Cec called Klamath Falls, near the California state line, to report that he was on a cross-country record flight, that everything was going fine and he had enough altitude to glide into northern California; he requested that they pass on the information to his crew, with whom he had been out of contact since his departure from Rainier. Then, at 15,000 ft. asl on the lee side of Mt. Scott, the blow fell: Houdini dropped down to the floorboards, and Cec fell out of the sky at over 2000 fpm. The sink was encountered at 2:42, and by 2:45, when he radioed Klamath Falls again, his altitude was down to 10,000 ft., only 2100 ft. above the ground. He tried to get the message across that he was in difficulty and might have to land a quarter of a mile east of the rim of the lake. Low-altitude communications problems left his landing position report misunderstood. During these few minutes he had another worry to contend with: he was drifting backwards out over the lake.

"I was about 1½ miles inside the east rim of the white-capped, foaming lake. The west rim was ob-

scured with wicked looking sprays of snow billowing straight up 1000 ft. or more. I knew there was lift over there, but I also knew there was no humanity there; and, with Klamath Falls radio unable to pick up my position report correctly, I would really be in trouble if forced down on the west side. So I dropped the nose and headed east; I watched the airspeed climb to 80 . . . still drifting backwards and sinking down into the crater, then 90 . . . standing still against the heavy headwind but making no forward progress, 100 mph (actual true airspeed at the time was 115 mph) . . . I breathed a sigh of relief when I finally started moving very slowly toward the east rim and the snowy wilderness between Mt. Scott and Crater Lake."

Aiming for a clearing in the trees, his final approach was made at 90 mph, and as the LK passed down through the wind gradient just after clearing the last trees at the edge of the meadow, the airspeed dropped down to 45 mph, just above stall speed. The flight was brought to a premature end in a 7900-ft. snow-covered mountain meadow 268 miles from his starting point and 5 hours and 25 minutes after release. Worried, not knowing whether his final message had been understood by Klamath Falls, Cec faced his immediate problems.

"After a very short landing roll, the LK settled down until the trailing edges of the wing were grazing the top of the powder snow. One look outside, where the snow was being funneled up into the air by the 40 to 50-mph surface winds, and I knew I had to find some sort of shelter fast. As I hurriedly reached down to unplug the mike, my gaze fastened on the woeful sight of my bushy-haired Houdini, lying on the floorboards! Despite the blizzard raging around me, I stopped for a moment to hang him back in his usual spot on the release knob before I climbed out of the ship.

"A clump of snow-decorated pines about 100 yards away offered a possible shelter. Wading in snow up to my hips, I discovered a fallen tree about 4 ft. above the snow line; and, using it as a ridge pole, I tried to drape the canopy of my chute over it. The wind was so fierce that it filled the chute and kept pulling it out of my hands. Finally, I cut the shroud lines loose

from the pack, managed to get the canopy over the log, and tied the lines to the trees and bushes close by."

His final radio message was understood only after FAA controllers Lee Flink and Dave Senff had played a recording of the transmission over and over. Civilian pilot Marion Owens, accompanied by Rex Morehouse, was dispatched to the area and sighted the glider near Mt. Scott about a quarter mile east of the crater rim. They observed Cec emerge from a grove of trees as they passed over the area. A sleeping bag and food were dropped from the rescue plane. The food package broke open on the way down, scattering groceries all through the forest.

"I was relieved to have been spotted so soon, less than an hour after the landing, and presumed that the FAA would send out a helicopter to pick me up the following morning. But the possibility that the weather might turn bad, leaving me marooned in the mountains for some time, caused me to set off in pursuit of the groceries. Plowing through that deep snow quickly exhausted me. I covered 200 yards, but didn't turn up a single can of food—they had plunged deep into the powder snow, and the blowing wind had quickly filled up the holes with more snow.

"Returning to my shelter, I finished tying it down, then packed snow all around the outer periphery of the canopy to seal it from the wind and snow, and crawled inside. After discarding the idea of building a fire in the heavy wind, I emptied all my emergency equipment into my sleeping bag (I was afraid of losing it in the powder snow), put the extra bag inside my own, and, complete with flight suit and boots, burrowed down into the comforting warmth. I was very comfortable despite the -10°F temperature, except for my face; the condensation from my breath on the inside surface kept drifting down in the form of ice crystals on my face. The problem was solved by pulling a wool cap over my head."

Unknown to Cec, a rescue party was already on the way. After being contacted by FAA officials, Park Ranger Larry Hakel and four Klamath Falls residents, Bud Story, Walt Haring, Les Porterfield, and Tom



John Day, a member of the Mountain Rescue Team, stands next to the survival shelter that Craig fashioned from his parachute.
Photo by Bill Pruitt

Ive, left Park Headquarters at 7:30 p.m. on four Ski-dos (two-place motorized snow vehicles). Two hours later, after foraging through the darkness and battling the gusty winds and blowing snow, they arrived in the Mt. Scott area where the glider had been sighted. To facilitate the search, the crew divided up, with two men setting off to search the open meadows in the saddle between Cloudcap and Mt. Scott, while the others located a protected area and built a fire. About 10:30 they were joined by a second party, consisting of Buck Evans, John Day, and Bill Pruitt, who brought additional supplies and survival equipment from Medford, Oregon.

The first two men were returning to the fire when they spotted the glider. By following the tracks in the snow, Tom Ive came across Cec's cozy shelter.

"I was so tired, I guess I dozed off from time to time. But around 10:30 I was joggled awake by the surprising sound of an engine running outside my shelter and a light flashing on the orange and white canopy of my parachute. Then, complete silence . . . the engine was cut off . . . there was no shout. I think my rescuer was afraid to ask if I were all right for fear he wouldn't get an answer. I finally yelled out, 'Hey, how are you?'"

"My rescuer's reply was heavily tinged with relief. 'I'm fine, but how



What goes up must come down—in some cases, with remarkable suddenness. This is where Cec came down, as seen the following morning (John Day on the motorized snow vehicle).

Photo by Bill Pruitt

about you? Are you cold? Are you hurt?"

"It was in a happy voice that I answered, 'No, I'm not hurt and I'm very warm. How about you fellas?'"

"We're pretty cold."

"Well, you'd better come in my shelter and get warmed up."

"Tom I've climbed off his Ski-doo, kicked away the snow, stuck his head under the canopy, and brought out a big bottle of 'medicine.' The other Ski-doo driver, Walt Haring, joined us shortly for a little warming up ceremony after reporting my location by portable radio to Park Headquarters and the rest of the rescue party."

"After the other Ski-doo drivers rendezvoused at my makeshift shelter, we started out on the 12-mile trip to Park Headquarters. The path was nearly impossible to traverse. There were places where the snow was drifted so high that we couldn't even find the road. The drivers at times had to take a shovel and notch out a path from a 45° solid bank of snow in order to form a step for the Ski-does to run on. We finally arrived at Park Headquarters at 2:30 in the morning and were

greeted by the Park Superintendent, Paul Larson, some of the others who spend the winter there, and a very welcome cup of steaming hot coffee and delicious raisin pie, which was thoughtfully served by Kay Evans."

Cec was driven into Klamath Falls by Dick Suber, Deputy Director for Civil Defense, and Sheriff Lou Bogart, who had previously escorted the rescue party and their Ski-does from Klamath Falls to Park Headquarters at over 80 mph. Arriving at 4:30, Cec greeted his wife and sandwiched in an hour's nap before getting up to investigate the possibility of getting the LK off the mountain. Dick Foy, owner and operator of a turbo-charged Bell helicopter based at Medford, agreed to attempt to lift the glider out in three parts, fuselage and wings. Haring, Ski-doo dealer in Klamath Falls, organized a team, consisting of the same four fellows that had taken part in the rescue the previous day, to make the trip back to the glider and help disassemble it. Mr. Larson suggested that one of his Rangers accompany the group. Weather had undergone a fantastic overnight change—the

sky was blue, the sun was shining, and there was no wind. The trip back to the glider was short and uneventful, but disassembling and moving the LK was another story.

"After pulling one wing spar pin, we broke off the puller bolt in the second spar pin. We did everything possible to get it out, without success—even cut away a portion of the fuselage structure so we could swing a hammer at it, but it still wouldn't come out. We were very discouraged because the helicopter pilot had previously told me he wouldn't attempt to take the ship out in one piece because it would be dangerous and unwieldy in a flying configuration. However, it now appeared that the only hope was a one-piece airlift."

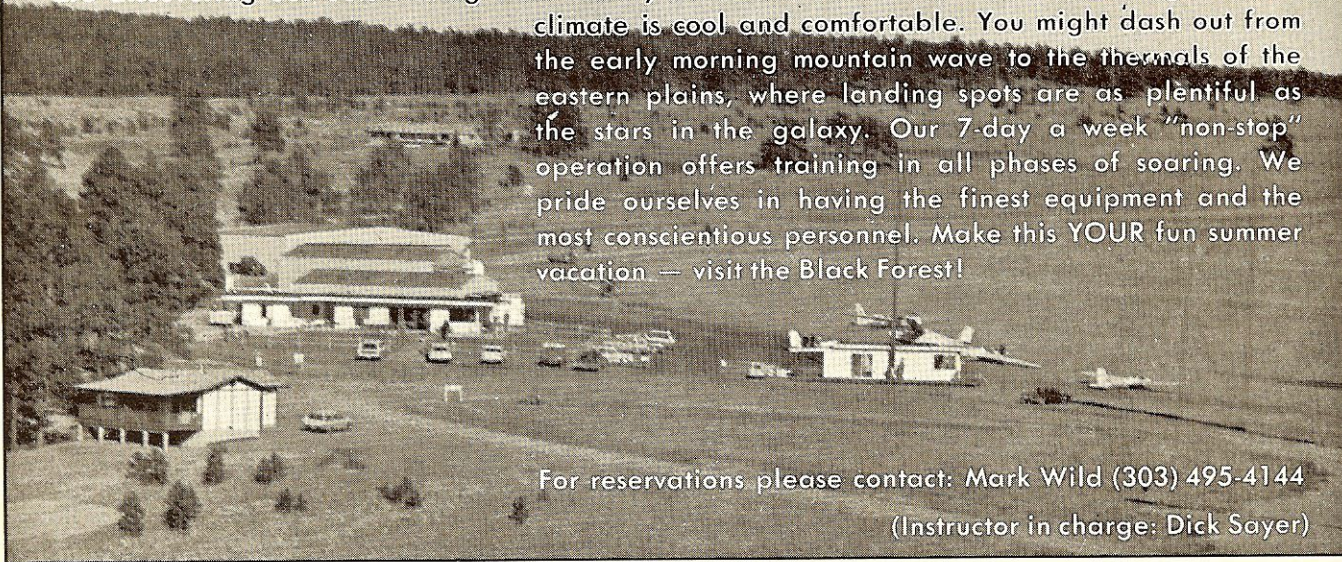
Cec decided to rig a sling to support the assembled ship. Fortunately, he had brought along a 100-ft. piece of half-in. polypropylene line and his 150-ft. towline. The polypropylene rope was made into a 50-ft. sling, which was attached to the main spars. Then the towline was cut into three pieces—two pieces going back to the tail and one to the nose hook.

"We left the tail and nose lines

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loose because I realized that after the helicopter pilot took a strain on the main-spar sling we would have to adjust the other lines so that the ship would be in a near-level condition when he lifted it off. If there was a negative attitude, the ship would tend to pull the helicopter down; if there was a positive attitude, it would tend to climb up, endangering the helicopter. When Dick arrived, I called him on 123.3 and told him we had been unable to remove the wings and asked if he would attempt to lift the whole ship with the sling we had rigged up."

Despite the nearly 8000-ft. altitude and the weight of the ship, Dick was finally persuaded to attempt the lift once Cec had given permission to drop the glider if his equipment or life were endangered in any way.

"The helicopter pilot took a strain on to the main sling while Walt Haring and Robert adjusted the tail and nose lines so that the glider was as nearly level as possible. We stepped back and I signaled him to try to lift it up. There was quite a lapse between the time he started to lift and the time the glider broke ground. He got it about 5 ft. up in the air and started moving very slowly with it. Then the glider slowly sank back on to the snow. The process was repeated many times, but to no avail. No damage was done to the LK during this time.

"Finally, Dick gave up and dropped the slings by pushing the solenoid button in the cockpit. He hovered beside me (he couldn't set the copter down because of the soft snow) and expressed his apologies for being unable to lift the ship out. He explained that lifting the weight of the LK was well within the capacity of his helicopter, but the downwash against the wings, set up by the rotor blades, was creating an additional 200 lbs. of weight. However, after a short discussion, we decided that if I removed the two oxygen bottles, the battery, and the ballast from the ship, thus reducing the load about 60 lbs., he would try again to get it off.

"During the next 15 minutes we worked feverishly, stripping the equipment out of the ship while the copter flew around at \$2.50 a minute, burning off two or three gallons of fuel, thus reducing the load another 12-18 lbs.

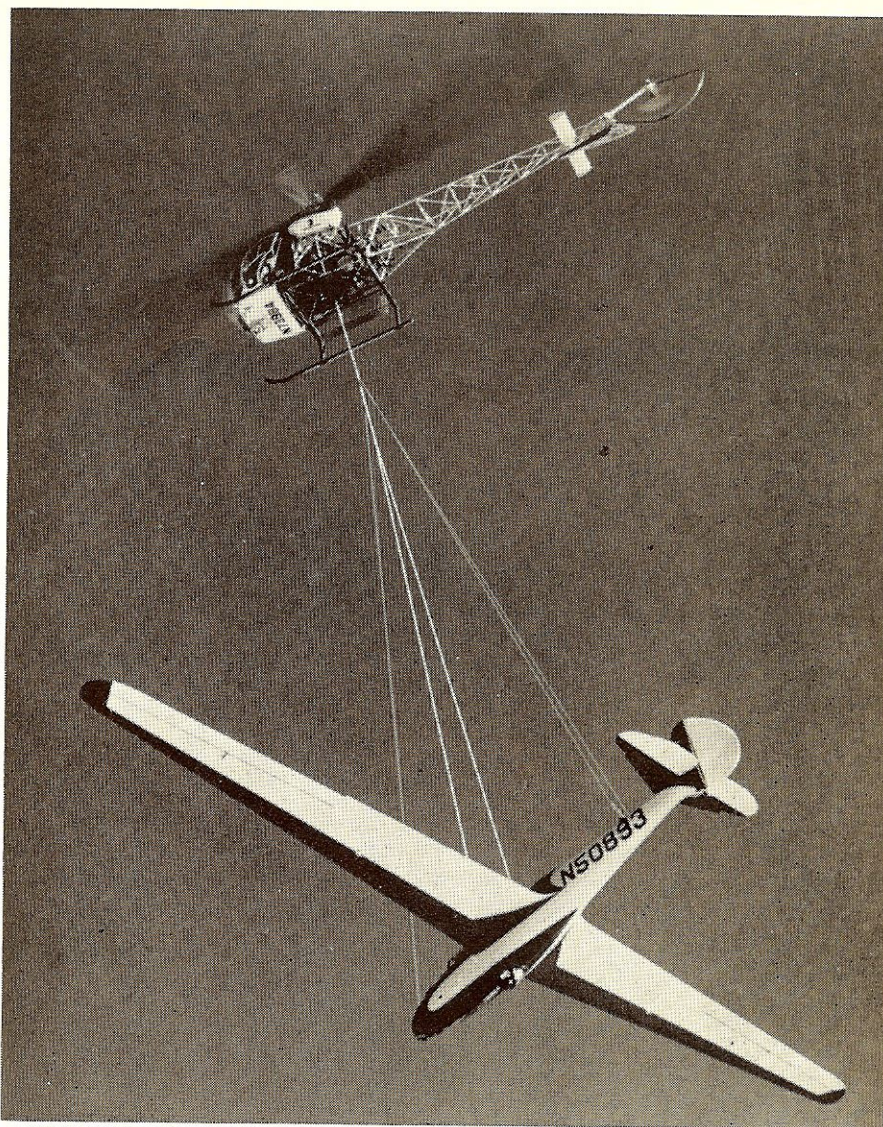


Photo by Cecil Craig

"By the time he hooked on again, a 10-mph wind had started blowing over the ridge, causing a slight downdraft on the glider and helicopter, so that even with the reduced load, he was again having difficulty lifting it. Dick finally maneuvered the glider around so that it was facing into the wind. There must have been a slight positive attitude on the sailplane because—with a little help from the wind drifting his rotor wash aft of the wings and adding some lift—he was able to get the LK up to about 25-ft., where he was able to safely start some forward motion with the copter. It was a beautiful and, to me, a heartwarming and relieving sight to see the glider rise and leave in the setting sun."

The helicopter pilot had planned to travel very slowly with the ship to prevent it from gyrating around,

but in order to make any headway against the 15-mph headwind he encountered as he gained altitude, he had to maintain at least 30 knots. He opened the copter door in order to keep a constant watch on the ship. There were times when the sling was completely slack and the LK was flying free under the helicopter. To further complicate the problem, it would start a turn to the right or left, and then Dick would have to jockey the helicopter to get over the glider and slow it down to stop it from flying and to let it settle into the slings again. During the flight the helicopter bubble was heated up by the sun and the cabin heat was on full blast, producing an inside temperature of over 110°. Dick was understandably uncomfortable incased in his thermal underwear, but he was kept so busy that he didn't dare release the controls for long enough to

reach over and flip the heat off!

Originally, Dick Foy had planned to set the LK down in the Park Headquarters parking lot, but because of the problems he was having, and considering the fact that he might have to release the glider

Cecil Craig



if he got into trouble as he descended between the trees, he decided to head 20 miles out in the valley toward Klamath Falls, near the south entrance of the park. He set it down gently into several feet of snow in a large open field.

"Bettyjean, Robert and I found the ship about 7 p.m. that night. We dug some holes in the snow and tied it down—fortunately, as it turned out. The rancher, Bill Brew-

er, told us the following day that during the night the wind had blown so hard that it shook his house.

"The next morning we borrowed tools, including a portable generator, bucking bar, and hammer, to use on the stubborn wing spar pin. We were fully expecting to have to drill out the broken puller bolt and remove it with an Easy-Out before we could put a new bolt in to try pulling the pin again. Bill and Gladys Brewer (owners of the field) bulldozed a road out to the glider so we could pull the trailer up to it. We got the ship up on the trailer, then Bruce and I went to work on the pin with the bucking bar (trying the easy way first). Bruce held the bar against the spar pin while I hit it as hard as I could with the hammer . . . the pin flew out! No drilling, no tapping.

"After the ship was disassembled, trailered, and pulled out of the field with a D-4 Cat, we headed back to Klamath Falls in a blinding snowstorm. There we joined my wife at the Franklin residence (my wife's sister's home), which was used as crew headquarters. The 13-hour trip back to Seattle in blizzard conditions (culminating a 1300-mile,

four-day retrieve), necessitating chains on the car and trailer, was made pretty slow and easy. After all we had been through, it would really have been incongruous to have an accident on the way home."

Cec's flight had ended with a fairly normal glider landing in, we will admit, a slightly unusual place, but the newspaper reporters had to add a few embellishments of their own to the story. Some sample headlines: "Glider Falls—Pilot Rescued After Stormy Crater Lake Landing"; "Pilot Hurt in Crash"; "Pilot Survives Landing After 8000-ft. Plunge—Pilot Walks Away!" (Emphasis added.) Headlines like those above (and the stories they preceded) led Rudy Allemann, Richland, Washington, Libelle pilot, to write the following to Cec, "Wow, a fantastic flight. We await a correct report!"

It was a fantastic flight—one that took a lot of planning and a lot of courage. Someone, someday, will complete this epic adventure that Cec started, and when they do, it will be partly because of the wonderful example he has set for all of us.

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J.S.W. Glide Calculators permit rapid in-flight assessments of height, range and airspeed. Available for sailplane types ranging from 2-22 to Phoebus, the Calculator has been designed in two forms.

The **LOCAL SOARING** model is for the sailplane of more modest performance and is intended for the relatively inexperienced pilot.

It solves, in three simple steps, the problems of optimum speed to fly for best penetration, and the height needed to fly a given distance in various wind conditions. It has been found invaluable on soaring trips around the home field, both in two-seaters and the early solo aircraft. On early cross-country flights it gives confidence in crossing unfavorable terrain and shows when sufficient height has been gained for a safe glide to the goal.

The **RACING CALCULATOR** has been designed for advanced sailplanes and advanced flying techniques. In addition to the information provided by the simpler Local Soaring model, this more comprehensive instrument also provides:

- Optimum final glide speed for a racing finish;
- Height/distance ratio in such a glide;
- Speed changes needed if the final glide conditions vary;
- Minimum thermal strength needed in headwind conditions.

Both calculators have WAC and sectional measuring scales printed on the edges for quick distance measurements. The Calculators available and the class of gliders for which they are recommended are as follows:

LOCAL SOARING:

LS-23 — Capstan, Ka-7, Olympia 2, 2-23, Swallow, etc.

RACING:

K25 — best glide 25:1, 1-26, Skylark 2, Ka-8, SF26, Bocian, etc.

K30 — (illustrated) best glide 30:1 — Skylark 3, Ka-6, 1-23, SF27, M-100, Dart 15, etc.

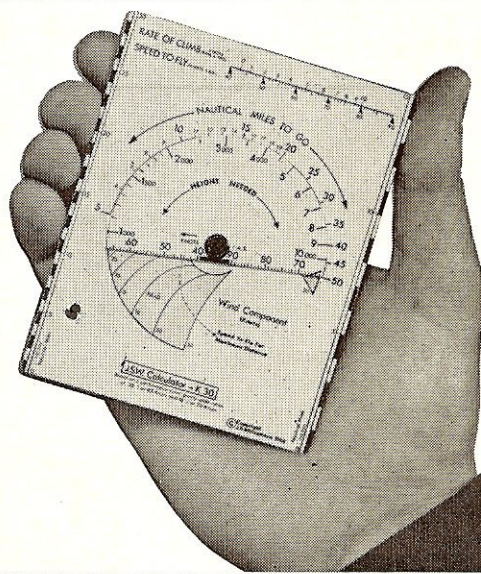
K35 — best glide 35:1 — Olympia 419, Skylark 4, Zugvogel 3, etc.

K17R-as K35, but improved high-speed performance — Dart 17R, Phoebus 15, SHK, Diamant 15, etc.

K40 — best glide 40:1 — HP14, Cirrus, Phoebus 17, Diamant 18, etc.

FULL INSTRUCTIONS INCLUDED.

Construction is in white plastic material which is both supple and tough. The Calculators fit handily in jacket or trouser pocket, being only 3½ x 4½ inches. Price: \$6.95. Airmail Prepaid. State Model desired. Exclusive U.S. Distributors.



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