

HIGH FLIGHT

by DUKE MANCUSO

FIRST OF TWO PARTS

During the past two years, with the exception of the 1958 Nationals at Bishop, California, my soaring activities have been confined to wave flying. During this period a total of seventeen wave flights were made beginning with a Diamond C flight over Bishop on May 2, 1957, and concluding with a night flight to 30,000 feet over the Mojave Desert on May 19th of this year.

My initial entry into wave soaring was for the purpose of establishing a new distance record. As flying activities progressed, however, the technical aspects of high altitude soaring began to take on new importance. The sharp velocity gradients and air mass wave perturbations which characterize this upper regime offer lift more extensive than any we have thus far experienced and holds promise of extending sailplane utilization and performance. When suitable techniques have been developed, soaring activities will be projected into another realm.

Space does not permit a detailed account of each of the flights made during this two year period or to present the findings, this will be the subject of a future paper. The present article will give a "brief" of this two year period of wave flying and will give a detailed account of one of the more outstanding flights made during this period. This particular flight was made over the city of Mojave, California, on April 18, 1959, in the Lee Wave of the Tehachapi Mountains and exceeded the World Altitude Gain Record, although not by enough to establish a new record.

1958 SEASON BRIEF

Preparation for extensive wave flying began shortly after my Diamond C flight at Bishop with the purchase of two new Skyrafter radios from Lynn Brown. The airborne station incorporated the five standard VHF transmitting frequencies for communication with control tower and range stations, plus unicom, glider and emergency frequencies, and a tuneable receiver in the range from 112 mc to 128 mc. The ground station was a new five watt unit which Lynn had developed. A standard 123.3 mc transmitter-receiver frequency was available in this unit.

Installation and system check out was accomplished by Lynn at his factory in Long Beach.

A second D-2 Oxygen tank was added below the original tank installation inside the fuselage aft of the wing trailing edge. This increased breathing capacity to over six hours at 30,000 feet. Flight clothing consisted of a fleece-lined trouser-jacket combination which had been used on my Diamond C flight. This left much to be desired but was the best available to us at the time. Electric socks and fur-lined boots were used for feet protection which proved to be an effective combination once the proper sock material and arrangement was used.

My home in San Diego served as operations headquarters during the start of flying activities. The glider was stored on its trailer in the garage. Nonfrangible equipment was kept in the trunk of the tow car and delicate items such as radios and barographs were kept in the house. With this arrangement I was able to leave within 45 minutes after a favorable forecast.

Roger Ruch served as my crew chief, chief weatherman and operations coordinator during the '58 season in conjunction with his career duties of piloting DC-7's for American Airlines. Roger's association with American Airlines provided him with an enviable source of up-to-the-minute weather information, and on the occasions where a glider operation followed one of his trips, a first-hand account of enroute conditions. I shall never forget Roger's efforts to launch me for that "Big Flight." The many hours of servitude behind the wheel of the tow car; the repeated pre-dawn checks with American Airlines weather office in Los Angeles prior to each operation; the many hours in wind and rain putting ship and equipment in take-off condition, and his efforts documenting, recording and planning. What we didn't realize at the time was the odds we were operating against.

Eight wave flights were made during the '58 season; one out of Bishop and seven out of Elsinore, California.

The flight from Bishop occurred on January 30, 1958. Roger had alerted me from Los Angeles on his

arrival on a DC-7 flight from Chicago the night of January 29th. Conditions appeared favorable for a cross-country attempt in the direction of Denver, Colorado.

We rendezvoused in Los Angeles that night shortly before midnight and made a final check with American Airlines weather office. Surface passage of a strong front was expected to take place in the Bishop area at 4:00 A.M. Wave conditions would remain favorable some three hours after frontal passage, with best conditions occurring at 6:00 A.M. We arrived in Bishop at 5:00 A.M. under clearing skies. A final check was made with American Airlines Weather office in Los Angeles, and after a hasty breakfast, preparations for the flight began.

Take-off was made at 9:00 A.M., three hours later behind Bob Symons in his familiar Super Cub. (This was to be Bob's last flight into the Wave.) Concern had not been given to the fact that we were late getting off. I anticipated a ridge flow over the Sierras, but felt I could penetrate eastward across the trough into favorable winds. What I didn't anticipate was the presence of a strong jet overhead. A radio check was made with Roger after release and again when the strength of the wave was determined. Roger was now proceeding, according to plan, at full speed toward Tonapah, Nevada. A telephone check with Bishop Airport, upon his arrival in Tonapah, would establish if I had landed. If I had not, Roger would assume that all was well and proceed on. This plan was considered necessary in order to locate the crew within radio range for a major portion of the trip.

At 20,000 feet, strong northwest flows were encountered and at 28,000 feet, I was in a jet stream. It was necessary to fly at near red line speed to remain in position in the wave. Radio contact could not be established with Roger when it became apparent that I could not proceed across the Owens Valley. Shortly thereafter I realized that I could not make it back to Bishop. At this point, speed was reduced to a safe figure and a direct headwind heading established. I drifted downwind out of the wave and down the valley. I was over Lone Pine before I had gotten below the jet and could proceed upwind in a normal manner. A landing was made shortly thereafter. A hurried call to Bishop was too late to intercept Roger who proceeded on into Utah.