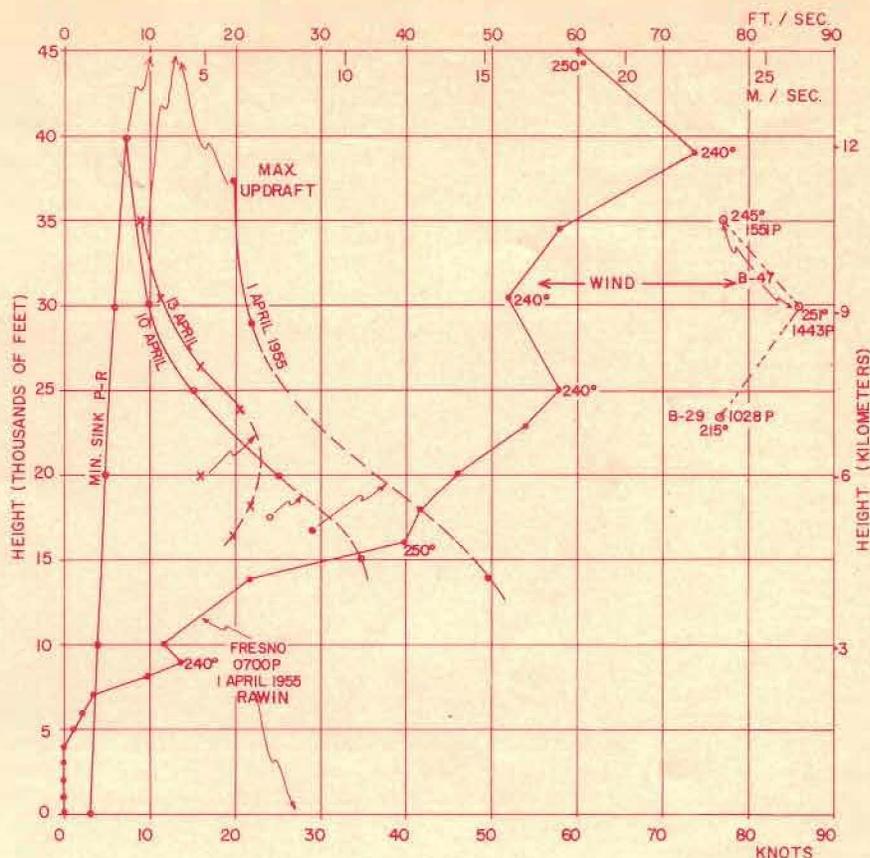


Fig. 2—Maximal vertical motions of air in first wave vs. height as measured by gliders over Owens Valley near Big Pine on 1, 10 and 13th of April 1955 (upper scale). Winds over Fresno (upwind of Sierra) measured by radio direction finder and by B-29 and B-47 on April 1, 1955 (lower scale). Curve on left is minimum sink of project's Pratt-Read. The dashed sections of the updraft curves are uncertain because of the 3 points falling, rather symmetrically, outside of the 3 curves. Dot and dashed wind curve (right), measured by the B-29 and B-47 over Fresno represents a different time than the Rawin observations from Fresno (solid line).



19, No. 4, page 20, July-August 1955.) Unfortunately we were not able to convince the CAB that an official accident analysis should be made. The most surprising fact of the accident was that the front section of the fuselage broke as a whole behind the pilot's seat shearing off all steel tubes. The wreck was inspected by many experienced persons. Here is an unofficial opinion expressed in a letter by Paul MacCreedy.

"Lloyd Licher and I examined the wreckage and compared notes with others who had checked it. Not being experienced in the field of accident analysis our findings are more conjecture than fact. The nose pulled off just at the seats, by what seemed to be tension failure of the steel tubing. Considering Larry's weight and the instrumentation, this should have required in excess of 16 Gs... The wreckage showed one wing, the left, to have broken at altitude. It broke downward, near the root. The tail boom was broken cleanly from the fuselage pod, at altitude, and appears to have come off upward. The various control cables going from nose to tail, in a bunch, were pulled apart completely. The force to do this should be far over 10,000 pounds."

"The glider was a Pratt-Read, and seemed to be in good shape. It was loaded about to gross weight, and should have withstood over $10\frac{1}{2}$ G's. It is hard to figure out how the nose could have been pulled, shaken or knocked off, because the wing should give way first. To have gotten enough air load to break the wing, it would appear the air speed must have exceeded 120 knots, meaning a strong horizontal wind increase in a short time, as well as a big change of vertical speed. Perhaps the asymmetrical loading caused by the side buffeting helped remove the nose. Another possibility is that the tail boom broke first, the remainder of the plane pointed down and a gust broke the wing off downward just as the wing down-load cracked the nose in two. It actually does not sound likely, but neither does anything else so far."

Later, Nick Goodhart, after a long silent inspection of the wreckage, came up with some remarkable observations which had been overlooked by others and which may give some clues as to what caused the fuselage failure. Here are some of his findings: (see Figure 4.)

"Examination of the wreckage revealed the following points. The bolts

which join the port wing spar to the top root fitting are bowed away from the fuselage and the spar has sheared along this line of bolts. The inference from this is that the main spar failed under a negative G load. After this failure it is assumed that the wing would swing down under the fuselage. Examination of the lower root fitting shows that at some stage it has been forcibly hinged down around the root attachment bolts... In making this downward swing the root fitting has largely sheared off the top end attachment of tube #1. (see diagram). Near the end of this downward swing the spar could strike tube #2. This tube is broken off at both ends... the following sequence of events is tentatively suggested...

"On entry into the cloud the aircraft probably encountered a very severe and turbulent gust from a direction which caused a rapid rise in air-speed together with a high angle of attack. Severe yawning and rolling forces were encountered... The positive G built up a value sufficient to damage the left wing structure to the extent that failure occurred at the mid aileron point. The wing failure produced a high rate of roll to the