CANADIAN SCENE

by DOUGLAS A. SHENSTONE

THE MU STORY

(Continued)

(Last month we got into 1950 with the fuselage, aileron, rudder, elevators and right wing finished, and progress on the right wing spar. Ribs had been built and the time for wading in had arrived. Vern Pope takes you further into this saga.)

And now we were in the era of finding a succession of new and unexpected weak spots. The "unkindest cut of all" occurred when we found that the skin of the horizontal stabilizer would peel off as easily as a banana skin. Since this was a stressed-skin part, a jig had to be made to hold the components in shape while it was reskinned. Then the skin and structure had to be redesigned so the skin could be applied in eight sections instead of the original four. Extreme care had to be taken in the clamping and attaching of skins so that bonding could be attained without collapsing the very light inner structure.

Another example of the difficulties entailed in maintaining the low weight of the original was the replacement of the spoiler torque tube. This tube runs through the wing, butts against and locks into the fuselage spoiler controls at one end and becomes the axis about which the spoiler/airbrakes revolve at the other. This tube was badly corroded throughout its length, especially at the bearing points. It was replaced with the lightest possible tubing available capable of handling the loads. Even at that we found that its weight was twice that of the part removed.

It had once been believed possible to have the MU ready for the St. Eugene Meet of 1950. Now we were hoping that it would be ready for Kitchener in 1951. All repairs to the wing roots were finished. The problem of the tubular rivets to attach the pick-up fitting to the spar had been surmounted by using specially machined bolts. In all, about 500 hours had been spent designing and building ribs and spar sections and in gluing and assembling. It only remained to reinforce the spoiler boxes where they had been exposed to the weather; the plywood cover was removed . . . and there was the same old story! The whole area was so badly weathered that the laminations in the rear of the upper capstrip of the main spar had separated from it, leaving us a weak-sparred, worthless wing.

Every method of salvaging the spar by rebuilding, splicing, etc., was suggested and rejected until we hit upon the scheme of injecting catalyst and glue by means of a pressure bottle attached to a "U" tube and hypodermic needle.

The suspected area was marked and small holes were pierced between the laminations, using an unfluted fretwork drill, about 1½" apart along the weakened section, the needle was inserted and the valve opened, so that the catalyst shot out of the spar inches beyond the last drill holes. Succeeding areas were then drilled and injected until no further run-out occurred. This "pierce and inject" method was used to test other suspected area, but the rest was found to be quite sound.

The glue was injected in the same manner in the same holes as the catalyst, but with a different needle. The catalyst, with the heat generated by hundreds of pounds of air pressure, solidified the glue almost immediately. The whole area was clamped and a very satisfying squeeze-out of glue occurred.

In spite of the success of the gluing it was felt that a static test was necessary to be sure. The loading was worked out in detail and many ideas were put forward re static-testing. When "Chem" LeCheminant suggested that the NRC might do it, they were contacted and agreed. The spoiler area from the spar to the opening was completely covered with plywood, some cleaning up was done, and the fuselage and wings were sent by trailer to Ottawa.

The structures group at NRC took our spanwise loading figure of 4.67g (about 1 ton) and worked out a chordwise distribution for it. Silence prevailed until Thursday at 10:30 P.M. when a radio message from them told us the wings had passed the test. We certainly want to thank Mr. Parkins, Director of the Aeronautics Establishment and his staff, for all their help. Mr. Parkins even came down from Ottawa on a Saturday afternoon to let the "retrieving party" claim the glider.

With the MU back in the workshop and all the faith and labours proven by NRC, the last lap is ahead. A man with a great deal of experience on this type of work has been engaged and he will spend his full time on it.

Of the total cost to date, the portion of the bad news covered by invoices is as follows:

Plywood, $102.60; glue, $12.00; dope, $100.00; fabric, $67.00; covering (labour), $40.00; welding, $234.68. The total comes to $556.28, but we expect the $234.68 may be reduced by Canadair to $100.00. These figures don't include transportation costs or items like wood, nails, tape, etc. And so far the job has absorbed well over 1000 man-hours. All this on one machine without even getting it off the ground.

Now that they can look back on the long months of work, the boys who have been sweating at this project realize that they might as well have put their time into the building of a new machine, but it got to the point quite early in the project where it always looked easier to go ahead and finish, than to quit and start something else. Only as they progressed did the new jokers turn up in the pack. Now that there is at least some real promise of the job winding up in a few weeks there are a few faithful, sweaty, calloused palms itching for the feel of the controls with a very well-justified and proprietary sort of yearning.

The sign of ecstatic satisfaction that goes up when the MU is towed off the first time will make the pilot think he is taking off downwind.

CU NIM GLIDING CLUB, Calgary.

Most interesting news come from the Cu-Nims including the information they now own a 1-19 which has had only 4 hours 19 minutes on it when taken over. It has a nice new shiny coat of silver dope and is registered as CF-ZBS—the last two letters standing, rather appropriately, for the quite sizeable amount of that commodity tossed about in the formation of this club. The Club does its ground slides and hops with an old twin-ignition Nash.

Says Barrie Jeffery; "No wonder few Canadians

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Sierra Wave on the 18th of December. This was something that we have been afraid would happen and now it has.

"On this particular day, the wave was probably the strongest that has ever been flown. Karl took off in a privately-owned P-R for an attempt to break the Swedish altitude record. He was warned to not exceed 35,000 feet since he was using a diluter-demand type oxygen mask (the ship had a pressure-demand regulator), and he agreed to stay below this limit. He never returned. A very extensive air search both by civil and military aircraft was carried out until Friday, 21 December when one of the search aircraft spotted the wreckage. It was located about 4 miles northeast of Independence Airport (Independence, Calif. is located about 50 miles south of Bishop in the Owens Valley, and Karl's body was found in the wreckage. The sailplane had lost both wings and the horizontal tail. There were definite traces of anoxia found by the coroner. The barograph was recovered and will be studied although much of the trace was obliterated. A camera was recovered and although badly damaged it is hoped that the film will be of some value. The barogram indicated a maximum altitude of about 45,000 feet ASL. It is not known whether or not Karl was conscious during the portion of the flight between 36,000 and 45,000 feet. He was not wearing a shoulder harness (the ship did not have a harness installed), and it seems possible that sometime during the flight that the pilot while unconscious fell forward against the control stick and that this resulted in a high speed dive and consequent structural failure. The total flight time is estimated to be one hour and thirty minutes.

"Please note that the above writing is not to be published as fact, since there are many understandable uncertainties. I shall be happy to provide any other information that you may desire."

Sincerely,
JOHN D. GRAVES.

It should be noted that unusual wind forces even interfered with road traffic on the exposed highway on that day.

Ovgard, 38 years old, was a professor of geography at a university in Sigtuna, Sweden. He is survived by his widow and small boy there. He was a thoroughly experienced Silver-C glider pilot who had previously flown in standing waves over Sweden, Iceland and Czechoslovakia.

Professor Ovgard had met Dr. August Raspet and Dr. Wolfgang Klemperer in Sweden in 1950 during the World's Soaring Contest. Hearing a paper given at the meeting of the OSTIV, by Dr. Klemperer on the subject of the 'Bishop Wave,' Prof. Ovgard became intensely interested in a personal investigation. He came to this country and stayed first with the Ben Shupacks in New York and attended the 18th National Contest at Elmira in July. Here he gave two very interesting lectures on his favorite subject and exhibited motion pictures of some of his European observations of the 'standing wave.' At Elmira he became acquainted with a large number of the American soaring fraternity. After Elmira Prof. Ovgard proceeded to State College, Miss., and an extended visit with Dr. Raspet at the Research Station there. Thence to the West Coast and on his way he stopped in Dallas where he was the guest of the Carseys and TSA, lecturing at a meeting.

If the Gatineau Gliding Club (Canada) doesn't like its gliding rugged it certainly goes to a lot of trouble to take pretty pictures.

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• *Canadian Scene*

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are aware of the existence of the sport of gliding. There is only one glider for every 200,000 square miles. It's a wonder any club has a short membership, though, with about 700,000 people for every glider in the country, or about a million prospective members per club. Not only that, but we note that only 0.001% of the population are SAC members! Let's have an all-out drive and see if we can't make it 0.002%!!

WE ARE SORRY

While SOARING'S proof reader hangs his head will you please get out your pen and your Sept.-Oct. issue and make the following corrections:

In Table I on page 21 the third column should be headed C sub D min.

In list of measurements of RJ-5 on page 21, Length (overall) should be 20' 9". Under "Weights", Pilot/Empty should be .366.

On page 25 (Drag Studies RJ-5) under Aerodynamic Characteristics first item should read: C sub D min. is 0.012.

For a clearer explanation of Pop Krohne's experiments with the LK aileron see SOARING for Nov-Dec.

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