

onto the wheel and tail and rolls freely. On applying the brakes again the dance repeats itself. This is a rugged ride and means that the nose skid must be reshaped to contact the ground closer to the rudder pedals, but "rocking-horses" are simply so intolerable that there is no other solution.

### DURABILITY OF MATERIALS

Many American sailplanes about 20 years of age are still in service, and some are even older. At the time they were built, say 1942, only 21 years had passed since Dr. Klemperer earned the world's first soaring badge in the Blau Maus, and 11 years since soaring really started in the U.S.A.! Our Soaring Society itself was about eight years old, yet here they are, still grinding around the sky. They were never really expected to last so long. The designers used, in general, the fabric and wood that was common in those days; indeed, the "TG" gliders were restricted in the use of metal. These craft are no longer considered youthful. The glues, the wood, the plywood, the varnish have lived full lives. It behooves one to fly them with that degree of respect due matronliness, to inspect them with increasing diligence and retire them (not sell them) when they are becoming dangerous.

Yet some have a lot left in their timbers and frames and have a good chance of setting even more records in the future—for records, like championships, are set more by the pilots than by glide ratio. Given an imaginative, mature pilot, a well thought-out soaring technique and a properly equipped and overhauled sailplane of WW II vintage and one can tackle weather conditions that will result in fabulous distances and

altitudes, far exceeding those standing today.

So we see that longevity is a very real factor. How does a sailplane age? If glues and wood and varnish, with doped fabric covering last for a generation, is this "good enough?" Well, it is certainly not bad and is quite a tribute to these materials, but the nagging questions still persist. Is it *really* still OK? Was this glider tied out with wet wings in a New England winter seventeen years ago? What about the hot moisture when it was in Florida in the summer of 1948? When it was in the Mojave desert in 1954 one knows the wood shrunk.

Will fiberglass and plastic do as well? Many modern plastics and adhesive materials are so new that age testing is done in the laboratory by techniques that are not yet wholly correlated with actual in-use aged parts, but there are great possibilities for careful designers.

What are the limiting factors of metal? Fatigue, mouse droppings (corrodes aluminum), loose rivets, stress corrosion, all of which can be designed for so that they should last "forever." But some hidden part might crack (these structures are all so opaque!).

### INSPECTION

What is still needed, then, is a simple, obvious, non-destructive means of assuring the structural integrity of the whole craft. The technique of determining the natural frequency of the spars is fine if it is very carefully controlled. It does not mean too much if it has not been correlated by comparison with a stress analysis and static test program—it may or may not be better

than nothing, depending on how it is used.

All of this paragraph has been slanted to encourage the early consideration of much more inspectability and to give the pilot pause before he assumes that "it flew yesterday so it must be OK today." When giving any aircraft a preflight check one should do it sympathetically, artistically, sensitively, thoroughly. "One should think like a glider thinks and feel as a glider feels." If one cannot do this because of lack of experience, then have a realistic, experienced person go over it with you. If one gains this kind of insight he has learned a great deal indeed, but help from the designer is important.

### SERVICING OF SAILPLANES

Most gliders are designed by persons who are rooted in the early days of flight when one was challenged to answer the question: "will it fly?" But now, one should also ask: "Is it easy to maintain and to service?" This area has only occasionally and recently been given the attention it deserves. That it is important is borne out by the usual "100 to 1" ratio of 100 hours work on the ground for 1 hr. of flight—ereabouts. So, really easy access to controls, structures, equipment mountings, etc. everywhere—and to brackets, links, bearings and pins is so desirable. Big "cut-down" doors, essential for easy entrance and exit, provide for easier access to the release mechanism, seats, stick, pedals, wheel, brake, oxygen, radio, ventilator and instruments than do the higher walled cockpits! If inspection and cleanup are easier, they can and will be done more often. The wing's controls in some instances may be located aft of the rear spar for easy inspection of the whole system. If flaps are used as cover plates one can save on inspection doors, can seal up the wing main structure (keeps mice out, and rain, dirt and stones from trailering) and new and exciting tricks of design, that will simplify life, will flower. This will surely make this sport more attractive. Obviously too, repairs would be

## FLY WITH THE FLYING GEHRLEINS

AT THE

## THERMAL-G-RANCH GLIDERPORT

RD4 HAMOT RD., WATERFORD, PA.



- INSTRUCTION
- PASSENGER RIDES
- LINK TRAINER
- WINCH TOWS
- HANGAR, TIE DOWNS
- SCHWEIZER DEALER
- DORMITORY & FAMILY CABINS
- SWIMMING, FISHING, BOATING
- RESTAURANT, HOME COOKING
- CHILDREN'S PLAYGROUND
- SCHOOL OF HORSEMANSHIP
- TRAIL RIDES



ERIE, TE 3-5123

PRICES ON REQUEST

ERIE, UN 6-1131

### DERRY PARACHUTE SERVICE

534 W. ARBOR VITAE  
INGLEWOOD, CALIF.

ORchard 7-6810

