THE HATZ HERALD

THE OFFICIAL NEWZLETTER OF THE HATZ BIPLANE ASSOCIATION

President's Corner

Jeff Orear

Milestones. They are the glue that keeps a Homebuilt building project moving forward. Regardless of the seeming insignificance, each mile marker that is crossed is a measure of progress toward making the vision of a newly minted Hatz a reality. Each completion of a task is a hurtle that is cleared, and each can, and should be celebrated. Whether it's making your last wing rib gusset, taking the last wing rib out of the fixture, or closing up the last aileron, each process in the build is a mini victory. As the saying goes, the way to eat an elephant is one bite at a time. I prefer to be less carnivorous, and describe the process more like watching each step you make instead of constantly looking at the peak of the mountain you are climbing.

Recently, I completed one of those milestones. "Patience" as I have named my Classic, got her wings. After 12 years of amassing milestones, all the little parts that made up the bigger parts finally came together to make one big part. In the course of about 4hours, there was a fuselage with wings attached to it in the hangar. For most of the course of the project, I have been basically working alone, but for the task of final assembly, I had to call up the troops. Many of my friends who are not associated with aviation in any form other than a flight to Mexico have expressed interest and willingness to lend a hand when needed. When the time came, I assembled quite the group of helpers, including a couple of my fellow retired dentists. "How many dentists does it take to hang airplane wings?" In this case apparently three, with a lot of additional help. It was fun watching everyone get enthused about the task at hand and actually have a good time. Of course, the burgers and beers afterward helped I'm sure.

I was very pleased with how things progressed. As I mentioned, the total time to get the wings

mounted was just over 4 hours. Keep in mind that this did not include finishing installing all the landing and flying wires and completing the rigging required. One thing that I did differently from what I had researched as standard practice was to mount the top wing first on each side. I made a support for the root end of the wing, and then had a helper use a sort of deadhead support similar to that used when putting up ceiling sheet rock at the wingtip. Once the wing root was secured to the cabanes, the support was moved outboard toward the tip to support the top wing while the bottom wing was attached. The support was made wide enough to clear the bottom wing. This made getting at the bolts holding the top wing on much easier.

Is our fearless leader using one of those blue light things dentists use to harden a filling to attach the wing? Careful Jeff! Not FAA approved. Ed.

Check another milestone off the list. That list is continuing to get shorter and shorter.

As always,
Remain calm, and Hatz on!

Around the Corner: From the Editor

Rob Lynn

Welcome to the “International Issue” of the Hatz Herald. As you will soon see, we have a lot of material from different Hatzers living in different places on this big blue/green sphere we all inhabit. As I write this it is February and I am in West Virginia looking out at a frozen scene. Snow is forecasted in a couple of days. With no disrespect to Punxatawney Phil, we have our own “rodent weather expert” here in these parts: “French Creek Freddy.” Both he and Phil predicted an early spring – I don’t see it, but hoping for the best. If they are wrong, I’ll be huntin’ groundhog come spring! As always, I need support from ALL OF YOU. Send photos, stories, money, aircraft parts, etc. to me at citabriarob@hotmail.com. Muchas gracias mis amigos!

I will keep my contribution short in this issue because of all the content we have. One thing I do wish to make members aware of is a project spearheaded by HBA members AC and Sue Hutson from Griffin, Georgia, regarding a new endeavor sponsored by EAA Vintage at Airventure:

We have a great opportunity for you to share your airplane building, restoring, and maintaining skills with a new generation! If you have a little time to spare while you are at AirVenture this year, would you consider volunteering in the new VAA "Charles W Harris Youth Aviation Center"? We will be offering a "Children’s Hands On Workshop" Monday - Friday from 1 - 2:30. Activities will include basic hand tool use, basic electronics, safety wire demos, basic aerodynamics etc.
Please call or email with questions or suggestions--or to volunteer! We'll be glad to send you more information.
AC and Sue Hutson Co-chairs
678-457-8957, susanbhutson@aol.com

From Philippe Caddeo, France . . .

As I promised, here are a few pics of my Hatz under construction.
I've made a few changes to the original Hatz Classic plan.
I adapted the rudder pedals to Beringer brakes (Acrosport inspiration…), I built the same seats as the Cb1 and I only put 2 stringers on the fuselage like my Swiss friends. (Hans & Sam *ed*.)

Beautiful work on the center section

Fuse taper to the round engine

Not quite ready for flight, but close . . .

From Michel Pallier, France

This was Michel many years ago building his Hatz #326 in his Paris apartment. He had to remove a picture window to extract the fuze

#326 in flight . . .

And with another classic: 1960 Citroen 2CV

Michel today – the builder seems to have aged, but Jacqueline and the Hatz still look marvelous!

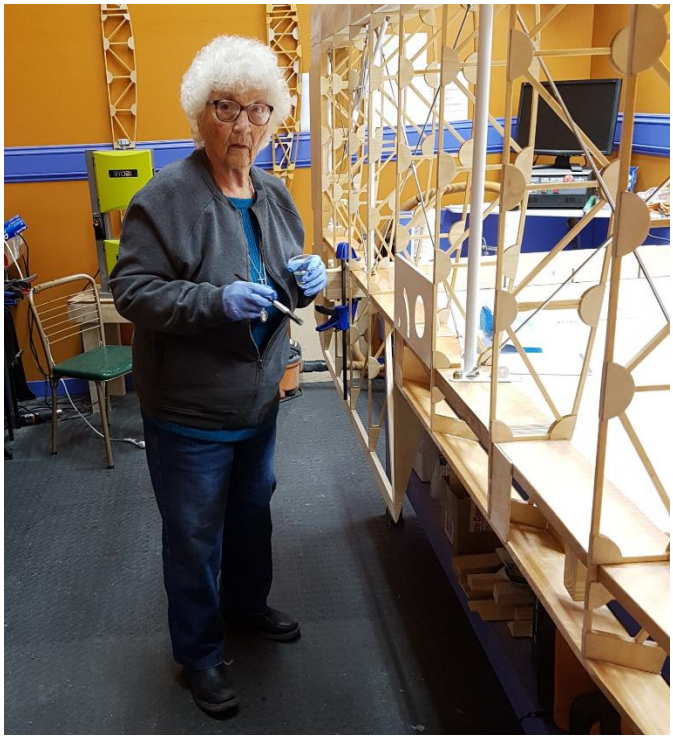
From Murray Marien, Canada

I started my Hatz Classic back in 2015. I was talking about building a biplane with a radial engine. I was looking for a gentleman's plane that I could get to the local fly-in's and that $100 hamburger. The Hatz fit the bill as it wasn't aerobatic like the Christian Eagle or Pitts. It was all talk until a never flown Rotec R3600 showed up on Barnstormers. I phoned Paul at Rotec to see if it was still warranted. It wasn't. Paul sold me a brand new one that was.

I had an engine on the way but I didn't have the plans for the Hatz Classic yet. I tried contacting Jeff thru his web site a few times but hadn't got any response. I convinced my brother to meet me in Texas so we could visit Jeff and see if he would sell me the plans for his Hatz Classic. My brother flew west from Gainesville, Georgia and I flew straight south out of Saskatoon, Saskatchewan. Jeff turned out to be a great guy. He sold me the plans for HC180 and gave me his cell number should I have any problems.

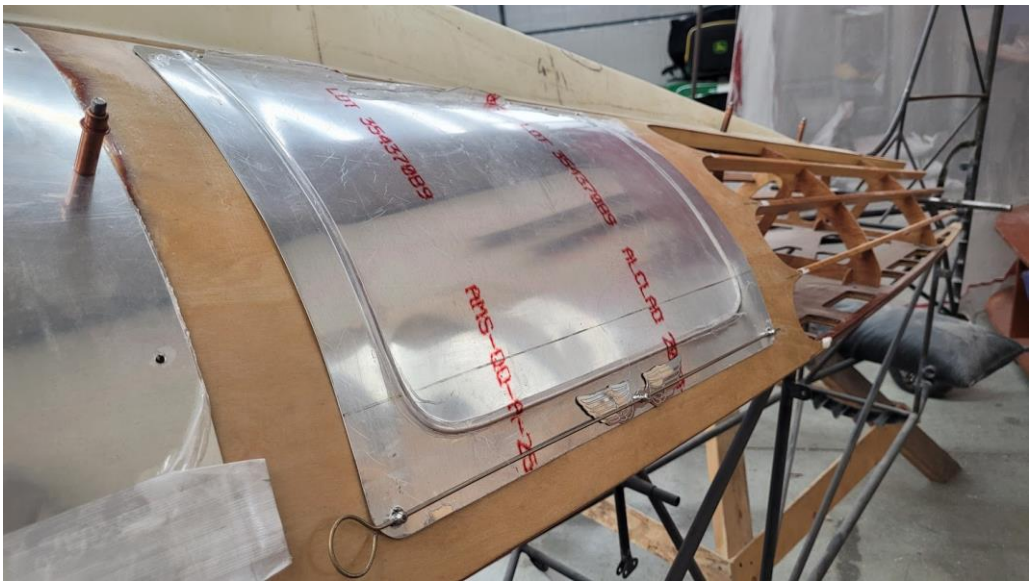
I was in with both feet. I started building ribs and started a blog to document the build. You can view the blog here: http://myhatz.blogspot.com

I also found the Hatz community and started checking out Hans and Samuel's Vintage Hatz, Ed White's Hatz Classic plus the Hatz forum and the EAA Builders Log Site. All great places to find help building my Hatz.



My mom started to come visit in the winters so I put her to work varnishing my ribs and wings. I had her sign the inside of one of the wings. She was a little concerned that the wings didn't have any nails holding them together. While she loved to fly with me she wasn't sure she wanted to fly in a plane that didn't have any nails holding it together. She passed away this last year but I have that wing that has her signature buried inside.

The latest project is the fuel tank. I'm testing my fiberglass skills and vacuum bagging. I did the headcomb with fiberglass.



I'm also experimenting with metal work.

I got to show my Hatz at the museum air show a couple of years ago. I put everything I had together and dragged it over. They let me set it up inside.

From Ray Jarvis, Australia

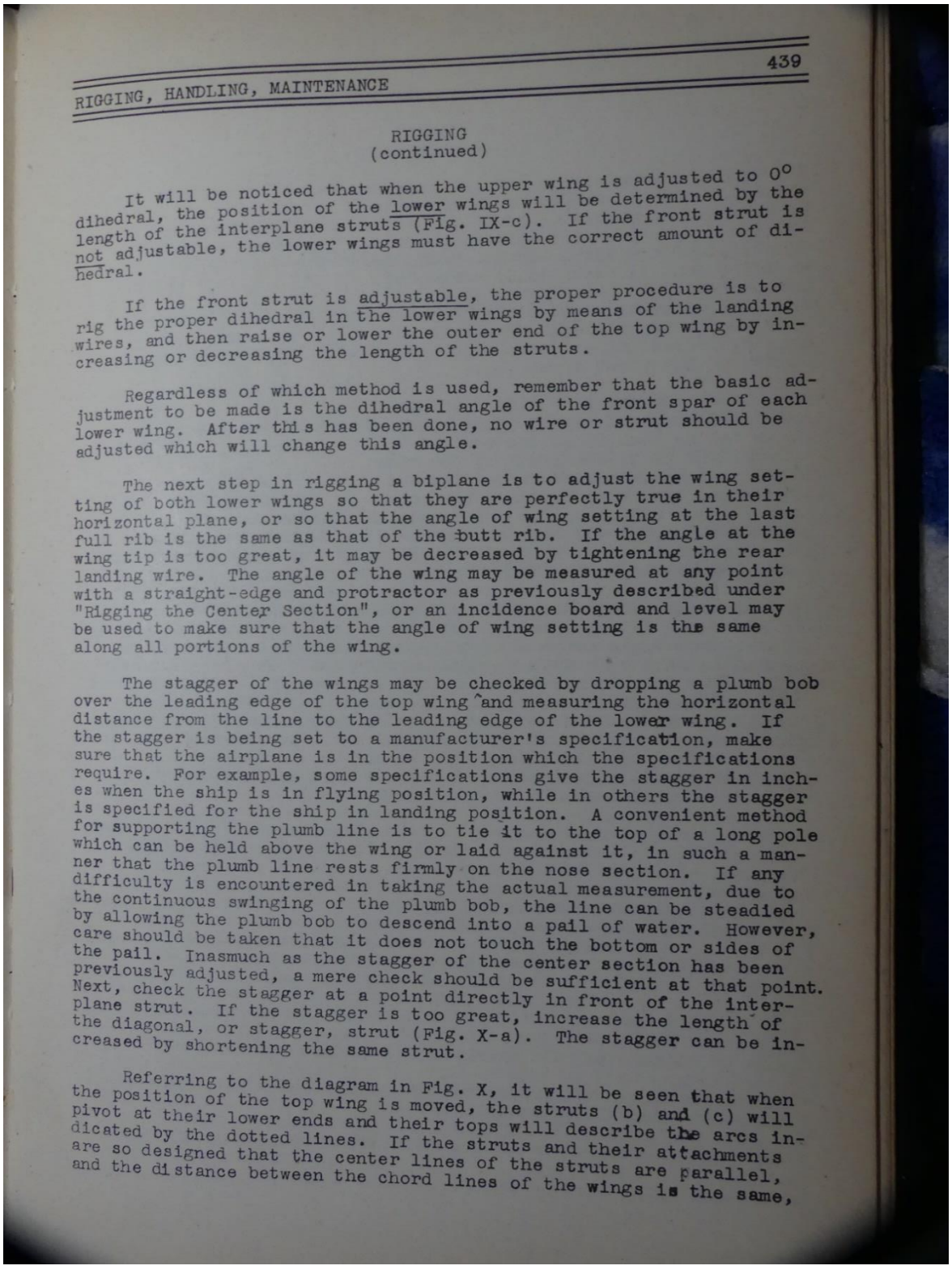
Ed: Ray purchased his Hatz sight unseen last summer, flew to the states, picked it up and for his first flight he landed at Brodhead for the Gathering of the Gaggle. He then had the plane crated and shipped to Australia.

Hi Rob,
I do apologize for delay in getting a missive to you about my HC-090, "Snoopy" (now VH-RCJ). However, since the container arrived in Australia, my life has been a continual roller coaster. After a month to get it and paperwork all sorted, I only did a circuit one friday evening and then beset by adverse weather it was only after a week that I got to take it for a 1 hour flight. Two days later I drove over 1000 miles to relocate to my new home north of Brisbane. The HC remains down in Victoria, pending Transponder upgrade and stable weather to undertake the journey northbound (hopefully sometime mid-March).
Coupled to this I had all December in US & UK and only got home here a week ago. I am also moving into a new home, so haven't had time to scratch myself.
I figure I will have more time and an extra chapter to the story once I get "Snoopy" up here. So please bear with me and I shall have a much better story to tell then.

Ray's Hatz over Brodhead last summer

Hatz Nutz and Boltz

Continuing with Brimm and Boggess regarding rigging our Hatz biplanes. These are the last pages about rigging. You can access the text online at hathitrust.org, search authors.



RIGGING
(continued)

It will be noticed that when the upper wing is adjusted to 0° dihedral, the position of the lower wings will be determined by the length of the interplane struts (Fig. IX-c). If the front strut is not adjustable, the lower wings must have the correct amount of dihedral.

If the front strut is adjustable, the proper procedure is to rig the proper dihedral in the lower wings by means of the landing wires, and then raise or lower the outer end of the top wing by increasing or decreasing the length of the struts.

Regardless of which method is used, remember that the basic adjustment to be made is the dihedral angle of the front spar of each lower wing. After this has been done, no wire or strut should be adjusted which will change this angle.

The next step in rigging a biplane is to adjust the wing setting of both lower wings so that they are perfectly true in their horizontal plane, or so that the angle of wing setting at the last full rib is the same as that of the butt rib. If the angle at the wing tip is too great, it may be decreased by tightening the rear landing wire. The angle of the wing may be measured at any point with a straight-edge and protractor as previously described under "Rigging the Center Section", or an incidence board and level may be used to make sure that the angle of wing setting is the same along all portions of the wing.

The stagger of the wings may be checked by dropping a plumb bob over the leading edge of the top wing and measuring the horizontal distance from the line to the leading edge of the lower wing. If the stagger is being set to a manufacturer's specification, make sure that the airplane is in the position which the specifications require. For example, some specifications give the stagger in inches when the ship is in flying position, while in others the stagger is specified for the ship in landing position. A convenient method for supporting the plumb line is to tie it to the top of a long pole which can be held above the wing or laid against it, in such a manner that the plumb line rests firmly on the nose section. If any difficulty is encountered in taking the actual measurement, due to the continuous swinging of the plumb bob, the line can be steadied by allowing the plumb bob to descend into a pail of water. However, care should be taken that it does not touch the bottom or sides of the pail. Inasmuch as the stagger of the center section has been previously adjusted, a mere check should be sufficient at that point. Next, check the stagger at a point directly in front of the interplane strut. If the stagger is too great, increase the length of the diagonal, or stagger, strut (Fig. X-a). The stagger can be increased by shortening the same strut.

Referring to the diagram in Fig. X, it will be seen that when the position of the top wing is moved, the struts (b) and (c) will pivot at their lower ends and their tops will describe the arcs indicated by the dotted lines. If the struts and their attachments are so designed that the center lines of the struts are parallel, and the distance between the chord lines of the wings is the same,

RIGGING
(continued)

the angle of wing setting of the top wing will not be changed by an increase or decrease of stagger. If it is not so designed, an adjustment will be provided in strut (b) or (c), or both. Thus, if an adjustment is provided in strut (b), the next step in the rigging is to adjust the dihedral angle of the front spar of the upper wing. This will be done by increasing or decreasing the length of the front strut (b).

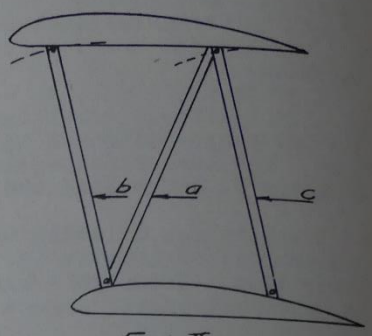


FIG. X

Check the angle of wing setting of the upper wing and adjust it by means of strut (c) so that it is the same at all points. If it is too great at the wing tip it can be decreased by raising the rear spar. In order to raise the rear spar without affecting the previously established stagger, both the stagger strut (a) and the rear strut (c) will have to be lengthened proportional amounts. Conversely, the angle of wing setting can be increased by shortening both struts.

After the above described adjustments have been made, the flying wires can be tightened to the proper tension. Before proceeding further, the angle which the wings form with the fuselage should be checked to make sure that no undue strain has been placed on any member. To do this measure from some corresponding point, such as the interplane strut fittings, to a central point located in the nose of the ship. Such a point might be the centerline of the engine mount, or the tip of the propeller hub. Needless to say, the measurement of the right hand side should be the same as that of the left hand side. If a difference of more than 1/4" is discovered, the entire rigging should be re-checked.

The final step in rigging biplane wings is to adjust the wash-in and wash-out for counteracting the effects of torque (torque is described elsewhere in this book). It is common practice in biplanes to put wash-in and wash-out in the bottom wings only. In the conventional biplane with a counter-clockwise rotation engine, the left lower wing should be washed in. Referring to Fig. X, this would be done by loosening the rear landing wire and lengthening the rear strut (c). If the exact amount of wash-in is not given it is safest not to increase the angle of wing setting more than one degree. If it is desired, the right hand lower wing may be washed out by shortening the rear strut and tightening the rear landing wire. After these final adjustments have been made, all strut adjustments should be locked, and all tie-rods streamlined and safetied.

To summarize, the proper sequence for rigging the wings of a biplane may be outlined as follows:

1. Set the dihedral angle of the front spars of both lower wings.

2. Rig equal wing setting angles in lower wings by changing dihedral

RIGGING
(continued)

of rear spar (if necessary).

3. Set the stagger.

4. Adjust or check the dihedral angle of the front spars of upper wings.

5. Rig wing setting of upper wings by adjusting rear spar.

6. Check wing-fuselage alignment.

7. Set wash-in and wash-out.

8. Re-check all points and safety all tie-rods, struts, and adjustments.

RIGGING MONOPLANE WINGS

There are many types of monoplane wings which cannot be rigged outside of the factory. However, those which are provided with adjustable struts may be rigged on the field. As with the biplane, the first step in rigging is to adjust the dihedral angle of the front spar. If rigging specifications are available, the amount of dihedral and the method of determining the angle will be given. In the majority of cases the dihedral angle may be measured by placing a straight-edge and level protractor on the front spar, as was done in the case of a biplane. If the amount of dihedral is not known, it is usually considered safe enough to adjust it to the mid-position. For example, if it is possible to adjust the dihedral from 2° to 8°, for purpose of trial, it should be set at 5°.

An inspection of the lift strut arrangement will disclose the method to be used in adjusting the angle. Struts which support the wing from above, as in the case of a low wing monoplane, should be shortened to increase the dihedral. Struts which support the wings from below are lengthened to increase the dihedral.

After setting the dihedral of the front spar, check the angle of wing setting of the entire wing. It is more convenient to adjust the position of the rear spar to give a constant wing setting at all points and then add a slight amount of wash-in and wash-out to counteract for propeller torque. Locking and safetying of all strut adjustments and tie-rods completes the rigging of monoplane wings.

RIGGING THE TAIL GROUP

Probably the most important alignment in the tail group is that of the horizontal stabilizer in relationship to the wings. Before attempting to rig this surface, the lateral position of the ship should again be checked to make sure it is still level. The rear member of most stabilizers is designed to be levelled laterally. This may be measured by placing a straight-edge and spirit level directly on the rear member.

RIGGING
(continued)

PREPARING FOR TEST FLIGHT

After the rigging has been completed the ship should be inspected thoroughly. Every strut should be checked to make sure that it is properly fastened, locked and safetied. Jar the strut by striking it with the hand and immediately investigate any unusual noise or rattle. Inspect every tie-rod to make sure that it is streamlined, properly tightened, and safetied. It is impossible to describe exactly how much tension should be in each wire. They should be firmly taut, yet not tight enough to bow any strut or spar. In general, landing wires should be tighter than flying wires, for they hold the weight of the wings when the ship is on the ground. Large wires are to be rigged tighter than small wires.

Install all vibration dampening brace tubes or sticks, jury struts, inspection plates, etc. Close all slide fastener patches and inspection openings.

Inspect the power plant installation and check all cowling, fairing, exhaust connections, etc.

Check the landing gear assembly, especially wheel bearings and safeties.

Inspect the controls for full, free action and for proper action. (Sometimes they are connected backwards by mistake.) Make sure that every bolt is safetied, that every pulley is operating properly and the guard is in place.

As a final precaution, check the rigging visually by standing some distance away and directly in line with the center of the ship. Sight along the upper and lower edges of the wings to make sure that they are in line with the stabilizer.

CORRECTION OF COMMON FAULTS OF RIGGING OR MAINTENANCE

Due to severe maneuvering, bad landings and general wear and tear, a ship may develop faults in flight or taxiing even though it is properly rigged to begin with. A number of these with their remedies are mentioned below.

Noseheaviness is caused either by too much stagger or improper stabilizer setting (on a fixed stabilizer). Increase the stagger by putting the center section ahead or set the leading edge of the stabilizer down. DON'T put a weight in the tail.

Tailheaviness may be due to too much stagger, too much weight toward the rear of the ship (such as extra baggage or equipment aft of the cockpit), dirt and mud in the tailskid opening, or too much negative angle on the stabilizer. Tailheaviness is a dangerous condition, tending to stall the ship and cause a flat spin, so the reason, particularly the weight distribution, should be looked into thoroughly before changing the rigging or tail setting. If the weight distribution is normal, decrease the negative angle on the stabilizer or decrease the stagger by moving the center section back.

RIGGING
(continued)

Wingheaviness may be due to propeller torque or change of alignment after violent acrobatics. Inspect wires and fittings carefully if the latter is believed responsible. Correct by washing in the heavy wing or washing out the other. This is, of course, not possible in a cantilever wing. In this case a small strip of metal about 12" x 4" may be attached near the rear beam at the wing tip with the 12" dimension along the span and the rear edge of the strip bent down about 30°.

Yawing or carrying rudder one way or the other may be due to misalignment of the fuselage. Check as far as possible as described in the preceding pages. If fuselage is in line, offset the fin to the side toward which the ship tends to turn, or lessen the existing offset as the case may be. All changes of this nature should be made a little at a time so as not to carry them too far in the other direction.

Ground looping is a tendency to turn while on the ground, particularly just after landing. It is not ordinarily highly dangerous to the occupants but may be rather tough on the ship as a severe ground loop usually means a broken wing tip, possibly a damaged landing gear, and sometimes a nose-over with consequent disastrous effects on propeller, nose cowling and top wing, not to mention the fin and rudder. And if the ship goes on its back there is always the possibility of fire, due to gasoline spilling on the hot engine. Some of the causes are misalignment of the landing gear, uneven adjustment of shock absorbers, improperly greased wheels, unequal air pressure in the tires, unequal adjustment of the brakes, bent or otherwise damaged tail skid, tail skid shoe on crooked, improper alignment of fuselage. The correction of each of these is obvious. Of course, improper handling of the ship on the part of the pilot may be responsible and this should be determined. Cross wind landings, careless application of brakes, landing with one wing low, are some of the things which adjustments cannot remedy. However, the mechanic should be sure he is not at fault before making any accusations in regard to the pilot.

THE HATZ GALLERY

MISCELLANEOUS PHOTOS AND STUFF

The newest “child” of Rick and Kathy Schultz. From the reports I have seen, initial test flights were very good. Congrats to you both – good things come to those who wait – and who work their arses off!

Pelican in flight, Celestun, Mexico. I love anything that flies, and in my humble opinion, pelicans are the absolute masters of ground effect. I have never seen one hit a wave – unless they were diving for dinner – and I have watched them for years – usually with a tequila in hand. Ed.

A new submission from Michel Pallier. Looking forward to many more . . .

THE DISCLAIMER

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