

FLATTOPPING *the* TG-2

By JIM SPURGEON

For many years I have had the impression that all sail-planes must be of the high wing type to assure good performance in spiraling flight such as required in flying thermals. I have always respected the performance of the Schweizer TG2 but always, I had visions of seeing this ship in a flat top version.

Recently, a friend of mine, Bob Brown, bought the TG2 club ship from the Montgomery soaring group and asked me to do a flat top version for him. I had already sketched out my ideas of such a modification so the job was very easy to do, I had majored several ships of this type and the structure is ideally suited to flat top design. The first step was to get rid of the green house over the cockpits and the after deck. I skinned the ship right down to the top longeron, from the forward instrument panel clear back to the stabilizer island. I then set up a set of contours for the front hatch to assure a smooth transition from the present nose into the flat area. This done, I reformed sections of the old canopy aluminum tubes into the new shapes and mocked up the new lines for the area forward of the wing. The top portion of the hatch was shaped to fit the large type plastic bubble Dr. Raspet makes down in Mississippi. After checking the lines for head clearance and visibility, I established the shape of the decking over the wing root area, using a solid bulkhead aft of the cockpit and 24 SO aluminum to support the fabric over the aileron crossbar and root structure. The aft formers were developed to give a rounded shape to the area from the wing aft in order to provide better streamlining for the nose down altitude of a TG2 at high speeds. The small bulkheads were attached to the spacers welded between the top longerons and three stringers were added to give the rounded effect.

The front hatch was built to match the existing primary fuselage structure but lengthened to provide better support for the bubble canopy. The shape of the hatch is such that single curve lines permit covering with fiberglass or plywood with simple wrap around and PK screw attachment to the ring formers. The fabric was overlapped over the top longerons and doped down over the entire aft deck from the cockpit back to the tail.

The bubble was mounted so that it would be an integral part of the front hatch and would open with the hatch to permit good access to the cockpit.

I removed the main wheel and built a cover for the opening of aluminum, attaching same to the structure with PK screws. An 8" streamlined wheel, tailwheel for twin Cessna, was installed with spacers on each side to permit using the same wheel hanger locations for the old installation.

From the lowest side longeron forward of the wheel, I doped fabric to the existing fabric and attached it to the skid sides with washers and wood screws. After final dopping to draw up this added fabric, the entire forward area of the bottom portion of the fuselage was well streamlined and proved to be a great help, performance wise.

No changes were made to any control surface or the wing in general. This change was made only to clean up the fuselage to reduce drag and change the

ship into a flat top design. The Ship was not changed in any respect so far as assembly was concerned so everything went together without any hitches.

The CG of the ship was unchanged since the forward loading limits cover a wide range of weight you can carry solo in the TG2.

Bob Brown and I wheeled the new version out onto the airport runway at Gillispie Field and of course the Bubble version always brings questions from all the power pilots as to why and where do they come from. I was sure the ship would have excellent low speed characteristics but the high speed range was somewhat in doubt. I slipped on a seat pack chute and climbed on board, not knowing for sure just what kind of a ride I was to get out of the dream ship. My fears were without reason because I was suddenly flying the quietest glider I had ever taken aloft. I made a short flight, straight ahead to feel out the controls and much to my surprise, the spoilers had no turbulent effect on the tail at all. I leveled her off just three feet or so off the deck and flying at 40 MPH, no spoiler now, she just kept on flying along and only after seeing the field boundary fence crawl up on me did I hit the spoiler and



Bob Brown poses happily with the newly completed conversion of the famous all-metal pre-war Schweizer two-place.

set her down. I was ready for a real flight now, sure that the job was a success.

Hooking onto a 90 HP Cub, I was off and climbing for a shakedown flight. I took her to 2000 feet and released. I slowed her down to 40, then 35, then 30 and she was flying like a dream. I kept pulling back on the stick and she kept right on plowing along, real quiet like.

The airspeed was calibrated to START registering at 30 MPH so after the hand swung down below 30 and still no stall or shudder at all, I did a mild bank to the left and then to the right and she kept right

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