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Little Toot Keeps



On Chugging

George Meyer would be proud of his classic design—and of his family.

By LeRoy Cook

When the late George W. Meyer began building a single-seat biplane for aerobatics, he really intended for it to be a one-of-a-kind. The Little Toot, as he called his aircraft, was so popular at the 1957 EAA fly-in in Rockford, Illinois, that he was soon receiving requests for plans. The first set of drawings was used by Arlo Schroeder of Newton, Kansas, to build the second Little Toot, and the rest, as they say, is history.

Several hundred sets of plans were sold, initially for \$50 per set, and almost 30 Little Toots are flying today. The Toot became popular in the 1960s, then faded from view as the 1970s saw an explosion of new homebuilt designs. And yet, there are new Toot projects being completed, and the total is still increasing.

After George Meyer's death in 1982, Meyer

Aircraft continued under the ownership of Tommy R. Meyer and Joy Meyer Kelley, son and daughter of the founder. They offer plans, parts, materials and builder support for Little Toot projects. According to Tommy Meyer, who bucked rivets for his father, a Little Toot can be built in three years of diligent effort.

Tommy redrew his father's original after-the-fact plans during the summer after he graduated from high school, tracing them in ink onto vellum. After a decade of persistence, Tommy has succeeded in buying his dad's prototype Little Toot from John Epperson, and he's about halfway through a complete restoration of the 40-year-old airplane, which has only flown about 300 hours.

The original concept of the Little Toot design was to provide a strong, safe and stable aerobatic platform; Meyer wanted to teach himself aerobatics, and his Little Toot was the vehicle he needed. The design limits were 10 G positive and negative, according to a stress analysis that was done shortly after the airplane was completed. A chrome-moly steel truss extends from the firewall to behind the cockpit, and two sets of flying and landing wires brace the wings. The 90-hp Continental on the prototype was the smallest engine recommended, but it was sufficient to provide a 110-mph cruise. Eventually, Meyer replaced it with a 160-hp Lycoming O-320.

To this day, the Toot is considered a stout airplane, thanks to the structure designed into it by George Meyer. When Meyer was persuaded to draw the plans, he also gave some options for alternate building methods for those who might not want an exact copy of his airplane. He was a metal-smith, so it was logical that his prototype had a riveted-aluminum monocoque aft fuselage and hand-formed cowling; the stressed-skin tail section began just behind the cockpit. A small baggage compartment behind the seat was reached through a door on the right side of the tailcone.

Tommy Meyer shows off his freshly restored Little Toot.

Leo Janssens follows Tommy Meyer's lead and tries to avoid second-hand smoke.



PHOTOS: LEROY COOK



Toot

continued

Little Toots are often powered like Tommy's, which has a 125-hp Lycoming O-290 and a Hartzell fixed-pitch propeller.

The first Little Toot also had a snazzy set of metal tail feathers, which were actually cut-down Luscombe stabilizers, elevators and rudder, complete with beaded-skin control surfaces. While many Little Toots have been built using the Luscombe parts, the plans also show a steel-tube and fabric aft fuselage and a wire-braced fabric-covered tail.

The fabric-covered wings use a NACA 2212 airfoil section with spruce spars and wood ribs; the original Little Toot's ribs used a plywood web with spruce cap strips attached, or builders can use a built-up stick-and-gusset rib, shown as an option in the plans. The tailwheel landing gear, however, has always been right off a Cessna 140; evidently George Meyer saw no reason to reinvent Steve Wittman's clean, maintenance-free design.

The wing layout is similar to that of other small biplanes; the two-piece top wing attaches to the fuselage truss through cabane struts, with I-struts at about the $\frac{1}{4}$ -span point. The chord length is 42 inches, and the lower wing has 2.5° of dihedral while the top wing has none. Both sets of wings are installed with 2° of incidence. Full-span, fabric-covered ailerons are on the lower wing only. Never fear, there's plenty of roll rate. The top wing is sharply swept—about 8°, enhancing the snap-roll entry and improving upward visibility. As I was about to find out, the Little Toot hasn't a mean bone in its body.

Tommy Meyer, a.k.a. *Son of Toot*, unabashedly proclaims the Little Toot to be "The greatest sport biplane ever built!" and one has to defer to his judgment, because he literally grew up with the design. He now offers fiberglass cowling and headrest parts, formed from his dad's original plug for

the fiberglass cowling he made when upgrading from the Continental C-90 to a Lycoming O-320.

When Tommy invited me to come fly a couple of Little Toots, I couldn't resist. His hangar is at Northwest Regional Airport outside of Fort Worth, once home to the legendary Edna Gardner Whyte's flight training operation. It continues to be a sportplane mecca, the sort of place where making a late decision to go around—just so you can pass in review before the assembled lawn chairs in front of the hangars—is considered to be congenial behavior.

In his earlier years, the younger Meyer and his friend Dennis Cassatt flew $\frac{1}{8}$ -scale versions of Little Toot in radio-controlled contests. This is the kind of model airplane that is large enough to carry small children or large pets. Eventually, he returned to his roots and started looking for a full-size Little Toot of his own; he knew he wouldn't rest until he had found and brought home his father's prototype, but he wanted a Toot to fly until then.

Enter Leo Janssens, who had wound up with a pair of Toots in need of restoration. His deal for Tommy Meyer was "have one restored for me and I'll give you the other one in payment for your work." A few days after Tommy expressed interest in this arrangement, Leo parked the first airplane on his hangar doorstep. The nice thing about Toots is their size; you can get three of them in a T hangar if you stack 'em well.

Tommy is a project manager for Trane Air Conditioning in Dallas, leaving him scant time for restoration. His friend, Phil Witt, an engineer with the huge aerospace company formerly known as



Toot

continued

Here's the cockpit of Tommy's Toot.

General Dynamics in Fort Worth, was to be his salvation. "Could you use some help?" he asked. Witt wound up driving thousands of miles to work on the Toots. Ron Adams, another friend, did all the wiring for the two biplanes. Between them and lots of others, they completed two beautiful restorations.

Tommy wouldn't be satisfied until we flew both airplanes. His is powered by a 125-hp O-290D Lycoming, modified with fuel injection. The single 18-gallon fuselage tank provides almost 3 hours of endurance, beyond

which only the hardy and the half-witted would persist in an open-cockpit biplane.

Leo Janssens' mount is called the *Brute Toot*, because it is pulled skyward by a conventionally carbureted 180-hp O-360 Lycoming. To feed the larger engine, 12 extra gallons of fuel can be carried in the wing center section, downloaded into the header tank as space allows.

The Moment of Truth

Tommy first waved me toward his small-engine Little Toot, N62TR, which was originally built by Jack Routh in Kingman, Kansas, in 1971. Viewed from a standoff vantage point, the Toot has a hump-backed profile with a pugnacious look about it. George Meyer was a tall man, but he sympathized with pilots of blind-as-a-bat biplanes who sometimes needed wingtip walkers to keep them out of harm's way when taxiing. He designed the Toot with ample forward visibility, leaving 7° below the horizon visible from the elevated pilot's seat, so you can taxi it without swaying from side to side. Landings and takeoffs are much less harrowing than in the average biplane.

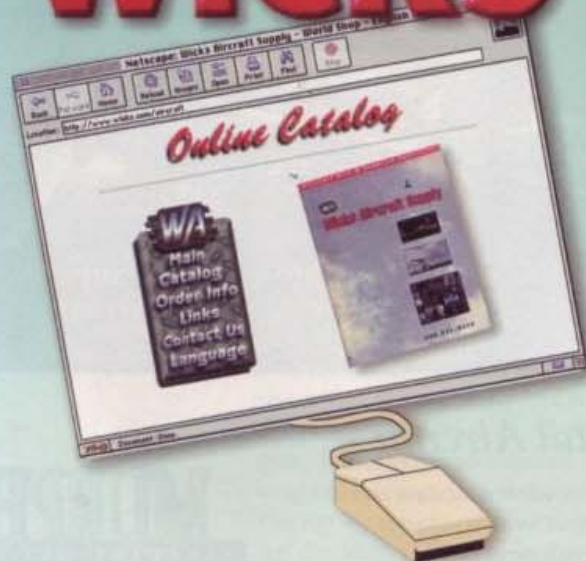
The main landing gear is set well forward; fat 6.00x6 tires are specified—a holdover from George Meyer's day when airplanes landed primarily on sod. This leaves the tail solidly anchored during taxi and improves braking effectiveness.

Getting Set

Stepping up onto the wingwalk, I snuggled down into the tiny cockpit, stepping on the seat while boarding. There was room enough, with a five-way Hooker harness clamping me into the airplane.

The 12-VDC battery is mounted on the floorboards, and the cockpit holds an M-1 Northstar loran receiver, an Icom A-21 handheld transceiver and a Terra TRT250D transponder with

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encoder. A Garmin 95 portable GPS receiver can be mounted in Meyer's cockpit as well.

The instruments are strictly VFR, supplemented with a G meter, a turn-and-bank for emergency IMC extrications and a VSI added for good measure. A small smoke-oil tank can be routed to the exhaust pipe when a statement needs to be made.

Startup and Taxi

Tommy leaned over the cockpit coaming to assist with the start. Bearing in mind the starting habits of throttle-body fuel injection systems, we began in idle cut-off, engaging the starter toggle with the throttle cracked. The Lycoming shook itself awake, and we enriched the mixture, leaving the knob an inch or so back from full rich to improve the idle.

A nudge of the throttle rolled the Toot down the ramp and to the taxiway; visibility was better than other miniature biplanes, and the Maule tail-wheel responded crisply. Runup is simple and quick: controls, trim, altimeter and a mag check. There being nothing else but to go for it, I lined up carefully and turned the Little Toot loose.

Into the Air

Even with a mere 125 hp, it accelerated briskly, tracking straight and true. The tail is firmly anchored, so one pushes the stick forward as soon as the throttle is opened; the tail is up by 40 mph,

and liftoff comes at about 50.

The controls proved to be light and quick, yet easily manageable. At 80 mph, we climbed at a steady 1000 fpm, turning about 2300 rpm. A few climbing turns out of the pattern brought us to 3000 feet, where I let the Toot's nose down to build speed. A 2200-rpm power setting yielded 110 mph, while 2300 rpm showed 115.

The control stick seemed linked to my brain—I just thought where I wanted to go and the airplane flowed naturally in that direction. Steep turns and lazy eights were fun, and a 3-G loop out of level cruise brought us right on around without complaining. A roll? You betcha—just set in the initial attitude and feed in the aileron with rudder to assist. Roll rate appears to be something on the order of 180° per second.

Power-off stalls were tame, falling through at 58 mph after a wakeup shudder. With power on,



Little Toot plans show stick-and-gusset rib construction, but Meyer displays another version with a plywood web and spruce capstrips.

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Toot

continued

The Toot fuselage is a combination of welded steel tubing forward and monocoque sheet metal aft of the cockpit.

the Little Toot hung on for another couple of mph but still refused to show its teeth. I hated to get back into the pattern, but duty called, so we peeled off and headed for the airport. A touch of power held the 90-mph base and 80-mph final approach.

My first landing came unbidden, as I was prepared for a shorter set of gear legs, but the Toot graciously allowed me to transition the inadvertent touchdown into a wheel landing, with nary a bounce. The next one plunked on in true three-point fashion; only a small flare is required to achieve the proper attitude.

On to the Brute

Before I could stop grinning, Tommy had me in N925BT, Leo Janssens' *Brute Toot*. Leo provided a checkout on the cockpit features so I wouldn't be confused by the different switches and controls. The O-360 gives a Toot an entirely different character, packing in 55 more horsepower for only a 100-pound increase in empty weight. Leo's airplane has a shorter control stick but was otherwise similarly set up like Meyer's airplane, but with no G meter. A Narco Comm 11A and AT-50A transponder constituted the avionics suite, although a portable GPS is mounted for cross-countries. A push-to-start mag switch did its job, after which I flipped on the alternator and activated the radios. Taxi felt no different, and *Brute* and I were shortly taking the active. Roll is short and we were off at 60 mph, snarling upward at 1600 fpm in a 100-mph climb.

Janssens' airplane has a control feel that is less sensitive than Meyer's airplane, both from higher airspeeds and less mechanical advantage from the stick. Trimmed level at 3500 feet, I saw 135-140 mph on 2300 rpm, and the *Brute Toot* guided us through the same handling tests with good results. It eats up more sky, but it's still a Toot. *Brute Toot's* stall came at 68 mph, power off, and at 55 mph with power on. We did manage to stall on top of a loop, probably by not pulling vigorously enough at the beginning, but there was no foul, just a dent in my learning curve.

The 180-hp ship's landings were similar to

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those in the 125-hp airplane, although I kept an extra 5 mph on the airspeed indicator to compensate for the heavier engine. I thought I felt some tire hop as we rolled out, as if I were inadvertently getting on the brakes, but the onlookers said they heard no protests. Runway handling was otherwise excellent, and we continued to make the 2000-foot turnoff we had staked out with the 125-hp airplane.

In retrospect, the Little Toots have aged well. They still serve their designer's intended function quite admirably—aerobatics and fun flying. Meyer Aircraft furnishes plans in both full-size and reduced-scale booklet form; the latter is easier to handle, but I would prefer the larger-scale prints. Any required building material can be supplied, Tommy Meyer said, includ-

ing the difficult-to-fabricate wingtip and center section bows. The next step? Why, a two-place, tentatively named Little Toot.

Meyer Aircraft is expecting a resurgence of Toot building as the news spreads. There are three projects underway at the Northwest Regional Airport, including Meyer's old radio-controlled flying partner, Dennis Cassatt, who is nearing completion of his own Toot. We look forward to seeing a good-size string of Little Toots lined up at EAA fly-ins. **KP**

FOR MORE INFORMATION, contact Meyer Aircraft, 170 Park Lane, Lewisville, TX 75067; call 817/430-3507.

Meyer's Little Toot

Prices:

Plans price\$200 + shipping
Information brochureno charge

Specifications:

Wingspan19 ft.
Wing area123 sq.ft.
Length16.5 ft.
Height7 ft.
Wheel track6 ft.
Wheelbase12.4 ft.
Landing gear typefixed, tailwheel
Tire size, mains6.00x6
Seats1

Weights and loading:

Maximum gross weight1350 lb.
Empty weight, standard914 lb.
Empty weight, as tested1025 lb.
Useful load, standard436 lb.
Useful load, as tested325 lb.
Wing loading10.97 lb./sq ft.
Power loading10.8 lb./hp
Fuel capacity, total/useful18 gal.
Baggage capacity30 lb.

Engine:

Modified Lycoming O-290D four-cylinder, fuel-injected, horizontally opposed, direct-drive, normally aspirated, 125-hp at 2600 rpm, recommended TBO 2000 hours.

Propeller:

McCauley two-blade, fixed-pitch, 72-inch diameter, 57-inch pitch.

Performance:

Maximum speed135 mph
Cruise speed125 mph
Range, with reserve260 s.m.
Stall speed55 mph
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