

Even greater STOL performance marks the latest version of a proven workhorse

Pilot Flight Check: The Lycoming-Powered Maule

by DON DOWNIE / AOPA 188441

■ ■ Take a proven airplane and add a proven engine with increased horsepower and you really have the means to escalate. The rise isn't only in performance—fuel and cost figures on the Lycoming 235-hp version of the Maule M-5 are higher than earlier engine installations—but the payoff is in the high-performance results. How about a takeoff roll of only 150 feet with one person and half fuel, or 350 feet at full gross weight?

The Maule M-5 is powered by a Lycoming O-540J, a derated version of the 260-hp model that operates on 100LL fuel. Rate of climb at gross weight is 1,500 fpm and landing roll is 300 feet. Redline for the derated engine is 2,400 rpm, while 2,750 rpm was permitted for the original model. It would seem that there is a real possibility for extension of the 2,000-hour TBO as more experience with the engine is developed.

The new 235 is teamed with a wide-bladed, 78-inch Hartzell controllable prop. Together they produce an excellent

thrust at the lower noise-level takeoff redline of 2,400 rpm. The Maule will make a quiet airport neighbor.

Fifty percent of the pilots who purchase the Maule are working bush types and the other half are "citized" folk who are looking for the STOL performance and the safety that goes with it, according to Joe Geiger, president of Performance Aircraft, Inc. (Hayward and Long Beach, Calif.)

Geiger, who sold 25 of the 100 Maules produced last year, attributed much of the plane's appeal to non-bush pilots to its capability of making turns within an area the size of a football field. The Maule can accomplish a high-performance, 180-degree turn in 150 feet with full power, full flaps, an entry speed of 80 mph, and a rollout speed of 50 mph.

But it's where the trees are tall and the airports marginal that the Maule really comes into its own. That's why Geiger and I headed northwest from the San Jose, Calif. Airport. The day was brisk and clear, but our choice of suit-



Conventional-looking high-wing "taildragger" Maule M-5 carries 43 gallons of fuel standard or 67 with aux tanks which boost range up to 990 miles at 65% power.



Maule in its element—a STOL liftoff from a bush-type airport. The new 235-hp Lycoming powerplant gets it off over 50 ft in 600 feet at 2,300-pound gross weight. Photos by author.

able back-country airports was limited due to muddy ground. Central California had received a deluge the day before and dirt strips in the foothills of the Sierras could have been not only messy, but risky.

Even with moderate power application acceleration was outstanding. The high-powered Maule seemed relieved to shed the pavement beneath its oversized 8.50x6 tires that cost 4 mph in top speed. We avoided the San Francisco

Maule M-5-235

Basic price \$24,500

Specifications

Engine	Lycoming O-540J, 235hp @2,400 rpm
Propeller	Hartzell, controllable speed 78 inch
Wing span	30 ft 10 in
Length	23 ft
Height	6 ft 2 in
Wing area	152 sq ft
Wing loading	15.1 lb/sq ft
Passengers and crew	4
Empty weight	1,400 lb
Useful load	900 lb
Gross weight	2,300 lb
Fuel capacity (standard)	43 gal (41 usable)
Fuel capacity (with optional tankage)	67 gal (65 usable)
Oil capacity	12 qt
Baggage capacity	250 lb

Performance

Takeoff distance	350 ft
Takeoff over 50-ft	600 ft
Rate of climb	1,500 fpm
Maximum level speed	174 mph
Cruise speed (75% power, 7,500 feet)	172 mph
Economical cruise (55% power, 12,500 feet)	164 mph
IFR range (75% power, 45-min. reserve)	735 sm
VFR range (economical power, no reserve)	820 sm
Service ceiling	24,000 ft
Stall speed (clean)	56 mph
Stall speed (gear and flaps down)	42 mph
Landing distance	300 ft
Landing over 50-ft obstacle	600 ft

TCA while holding a steady 1,500-fpm climb at 23 inches mp and 2,300 rpm, heading for Geiger's favorite tall-tree hideaway—the Lofty Redwood Airport.

Lofty Redwood sits atop a 1,317-foot ridge, overlooking the Pacific, some 110 miles north of the great Golden Gate. It sports a 3,200-foot-long runway with a thin, asphalt base. As good a place as any to test the Maule's prowess.

Cockpit visibility from the Maule is similar to that from the Piper Tri-Pacer, or an older Cessna 150 minus the rear window. With the adjustable front seats all the way back, your eyes are 28 inches aft of the leading edge of the wing. Eye level is just below the top of the window frame. The tubular fuselage structure behind the windshield presents little difficulty as far as visibility. After a few minutes of flight, you hardly know it's there. Plexiglas doors for increased patrol visibility are available as a \$350 option for the front doors, or \$550 for all four doors.

As we nibbled at mild turbulence, I asked Geiger where the shoulder harnesses were located. He shrugged and said that he had requested them (a \$100 option) but that they were on back order. Despite the fact that you can skid the big tires of the Maule with no load in the back seat, I consider some sort of shoulder restraint a must in any tail-dragger in case of a noseover.

The Maule, with only a 30-foot, 10-inch wing span and 20-foot nose-to-tail length—some 5 feet shorter in both wing span and length than the Cessna Skyhawk—is not a big airplane. Gross weight is now 2,300 pounds but an application is pending with the FAA to allow an additional 200 pounds because of the additional power now available. Flight tests, including spins, have been completed at this higher weight.

The M-5 has a cavernous baggage compartment and the back seat can either be folded down or quickly removed. A 51-inch double cargo door on the right side of the plane renders easy access to storage areas.

As you might expect with a workhorse airplane, no unnecessary weight has been spent in soundproofing. However, the big 235-hp Lycoming with its low rpm setting is reasonably quiet.

The M-5 has two 21.5-gallon main tanks, 20 gallons usable in each, and two 11.5 gallon aux tanks (an \$800 option) located near each wingtip. Reserve fuel is transferred to the main tanks by

electric pumps after the main tanks are less than half full. A standard "L-R-Off" fuel valve is located below the pilot's left knee. Although the main boost pump is not required for normal takeoffs, Geiger uses it for maximum performance demonstrations.

There's a standard between-the-seats elevator trim and a novel pull-and-twist rudder trim that works out remarkably well. A knob behind the right control wheel applies bungee pressure to the rudder cables. The further you pull, the more right rudder force is applied.

Cabin ventilation is effected by a push-pull knob on the panel and tricky cut-outs toward the bottom of both main windows and the left rear seat window. None of the windows open. The cabin hot air knob is just to the right of a similarly shaped knob which controls the mixture and is located to the right of the prop vernier control. Personally, I'd like to see an alteration which would put the mixture control as far away as is practical from essential power controls.

Once you get up, the Maule performs as advertised. At 6,500 feet, 60° F, 23 inches mp, and 2,300 rpm, the Maule indicated 150 mph which computes to 169 mph true, only 1 mph off the 170 quoted for 75% power at optimum altitude with standard-size tires. On our return leg at 7,500 feet, economy cruise of 22 inches and 2,200 rpm, we showed 143 mph, 163 true, with an OAT of 52° F. At 65% power 11 gph is called for, promising a range of 990 miles with no reserve.

We tried a series of stalls before let-down to Lofty Redwood, but even with the wheel all the way back, power off, full flaps, it was impossible to obtain a full stall with just two of us in the craft. Gross weight stall speed is 42 mph. At our light weight and forward CG, the airspeed indicator was well under 40 mph and our rate of sink was between 600 and 700 fpm.

As so frequently is the case, the wind sock at Lofty Redwood lied. Although it showed a stiff breeze right down the runway, whitecaps were whipping up on the not-so-Pacific Ocean, indicating gusty air at an angle to the runway. Geiger suggested a conservative 80 mph for our first landing.

As we turned final and steered for the slot cut in the tall timber, we hit turbulence. Winds rising from the ocean, cresting over the ridge to whip around the trees, produced an unstable condition that made sensitive aileron control a most appreciated feature.

We added power as the timber passed

beneath and then came off the throttle once the runway was beneath us. Even down in the so-called protected area, there was enough turbulence to make flare to touchdown interesting. I landed the M-5 like I try to land any other taildragger, tailwheel first. However, we wound up touching on all three wheels at about the same time, commencing a tug-of-war between the big tires and excellent Cleveland brakes to keep the nose and runway lined up. The M-5 seemed to roll a little from side to side until lift from the super-efficient wing dissipated. The approved STOL procedure is to retract the flaps and apply heavy braking immediately after touchdown.

As we stopped and turned around with much more than half the runway remaining, I asked Geiger about this unexpected slight rolling tendency. "You weren't quite stalled when you touched down so there was some lift available," he explained. "Also, the tread on these wheels is just six feet. That's the same separation you'll find from automobile tracks should you ever want to land on them. By comparison, the Cessna 180 gear is eight feet wide."

The maximum-performance takeoff procedure calls for locked brakes, full power, brake release and wheel full forward until the tail starts to lift. Then full 35-degree flaps, wheel back and climbout at somewhere under 50 mph when in calm air. Because of the turbulence, we made the spectacular short-field liftoff and let our speed build up rapidly to a comfortable 70-75 mph. With ridge winds buffeting upward, our VSI showed in excess of 2,000 fpm.

A look over your shoulder confirms that the angle of climb into a 20-knot wind is close to 30 degrees, but it seems much steeper than that since most climbouts are made at about 10 degrees. Geiger reports no engine cooling problems on hot days even at these ridiculous angles.

With 7,500 feet, San Francisco Bay in sight and the right tank half full, we continued on for Geiger's home base at Hayward. Holding 20 inches and 2,200 rpm at 150 mph indicated, we were dropping about 400 fpm. There was plenty of speed and altitude to spill off as Geiger tuned the ATIS and switched to the tower. We were cleared to land on the 3,100-foot Runway 28R. Wind was 10 knots down the runway.

"There's a 200-foot overrun on that runway. Let's see if you can get us down and turned off by that point," challenged Geiger.

With the seat all the way back, it

takes a full reach to get to the flap handle. We applied both notches, 15 and then 35 degrees, trimmed nose down slightly and settled on a 60-mph approach speed with the rate of sink controlled by power. We kept coming back on both elevator and power, shooting for the first 20 feet of the runway.

We were a little fast and the M-5 floated for perhaps the first 50 feet. Once the tailwheel was solidly on the ground, Geiger snapped up the manual flaps and said, "Get on the brakes. We can make it."

The big tires didn't skid and the tail showed no tendency to come up as long as the controls were held full aft. We were slow enough to make the 200-foot turnoff.

"So now you're a STOL pilot," beamed Geiger with that check pilot's sense of accomplishment. From my standpoint, I believe that I could make that turnoff four times out of five with the breeze we had, but only after considerable practice.

The M-5 is approved for both the 235 Lycoming and the 210-hp IO-360D Continental. Until perhaps two years ago,

it was also available with a 220-hp Franklin that is now out of production. The Lycoming is the heaviest installation and leaves a 900-pound useful load. The Franklin is 50 pounds lighter while the Continental is 80 pounds lighter. Geiger has a recently-approved supplemental type certificate (STC) to convert Franklin-powered Maules to the new Lycoming configuration. Factory cost is \$9,200 for the engine and \$1,500 for the prop, plus engine mounts and installation time.

The 235-hp M-5 is already approved for Edo 2440 floats (\$9,500) and will be approved for Wilbur skis (\$1,350), A200A skis and tail ski (\$1,280), or hydraulic Federal C2200H skis (\$4,680). A \$200 glider tow hitch is another of the many options available. With its healthy rate of climb, particularly at lower weights, the Lycoming-powered M-5 has all the makings of an excellent tow plane.

If you're looking for exciting performance in a challenging compact for a myriad of chores or pleasures, try climbing into Mr. Maule's 235. □



Maule distributor Joe Geiger opens ample, 51-inch-wide double cargo door. Rear seat can be folded or removed to take advantage of 900-pound useful load for freight. Extra large tires are for soft/rough fields.