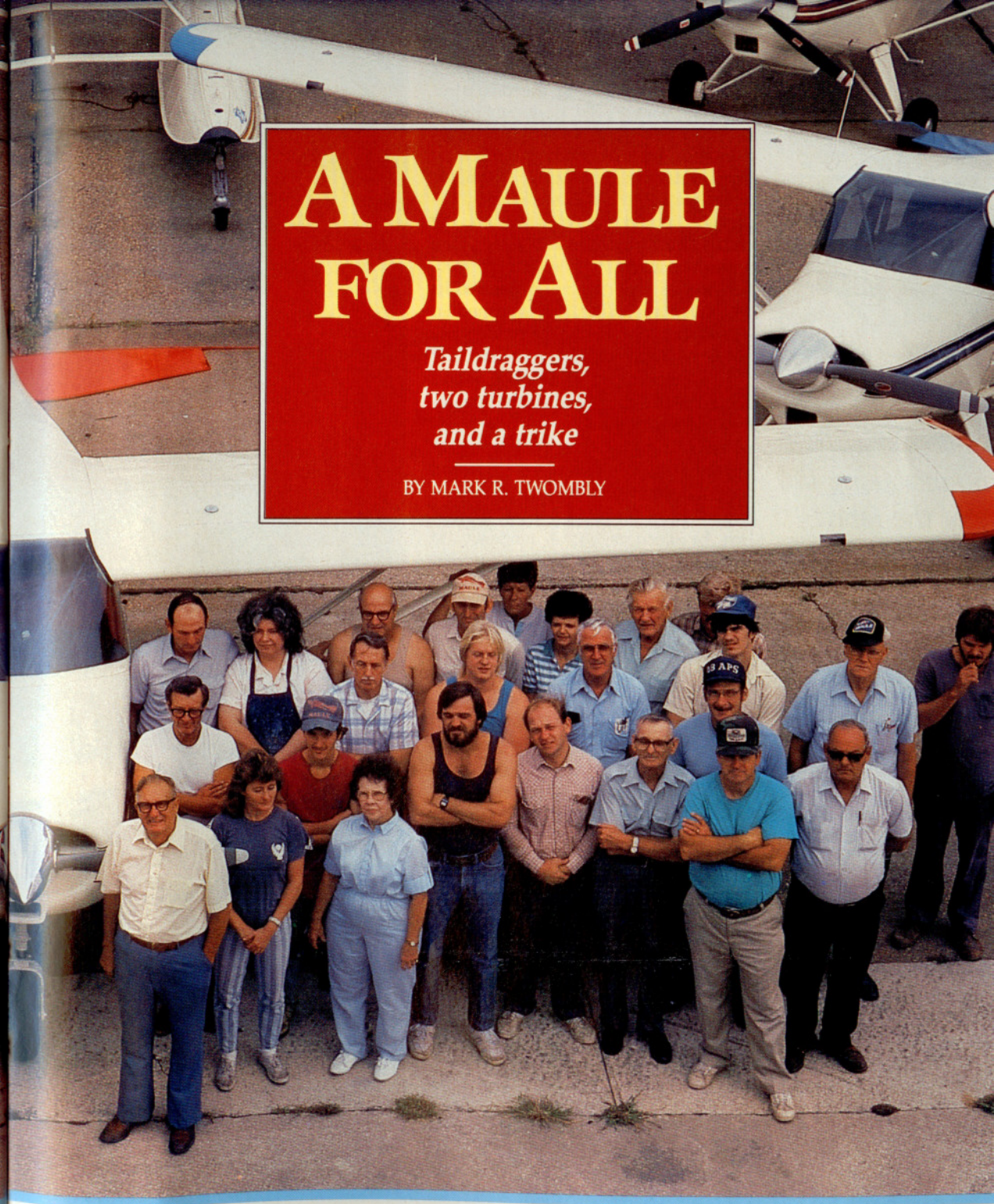
A MAULE FOR ALL

Taildraggers, two turbines, and a trike

BY MARK R. TWOMBLY



Caution: The following news item may be traumatic to the mental well-being of taildragger purists.

Belford D. Maule, who invented the steerable tailwheel and whose namesake company is the sole remaining source of four-place tailwheel-configured airplanes, will produce a tricycle-gear model.

It's true. The tri-gear Maule is for real. It is flying at Spence Field in Moultrie, Georgia, home of Maule Air. Also flying are a pair of kerosene-burning turbine Maules, one of which rides on amphibious floats, the other on tires. (Take heart, purists, at least the turbine Maule has a tailwheel.) This is heady stuff for a small family-owned and -operated airplane manufacturer that has chugged along for 26 years with a very conservative philosophy regarding change.

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Evolution occurs at a relaxed pace at Maule. The company has produced just five different models, all piston-powered taildraggers and all direct descendants of the 1962 Bee Dee M–4. The three models currently in production, the M–6, M–7, and MX–7, are more powerful, carry more fuel, and have more wing, flap, aileron, and rudder area than the original M–4, but there is no mistaking the heritage of the fabric-covered tubular steel fuselage and wide, constant-chord airfoils.

Maule's reputation is based on building rugged short-field airplanes that sell for a reasonable price. Maules are flown with floats, snow skis, and fat tundra tires, as observation platforms and spray applicators, and as glider and banner tugs. The company spotted a new market niche opening up when Cessna bowed out of manufacturing light aircraft. Few of today's pilots are trained in or have an opportunity to fly tailwheel airplanes. They fly airplanes with nosewheels. Why not build a Maule for them? The result is the MXT–7–180, which is identical to the MX–7–180 save for the landing gear.

Converting a tailwheel airplane to tricycle gear may make sense from a marketing perspective, but aesthetically it often does not work. The tri-gear Maule comes off better than most. The nosewheel is well forward, and the long cowl adds balance to the characteristically tail-heavy look of a Maule.

The switch to tricycle gear was made by moving the main gear attach points rearward and replacing the oleo strut hardware with a solid aluminum eight-foot-track spring gear. (The same main gear structure will be tested on one of Maule's tailwheel models). The nosewheel is an air-oil strut, steerable by depressing rudder pedals. Rods link the pedals directly to a horn at the top of the nosewheel assembly. The direct connection means that the nosewheel cocks whenever the rudder pedal is pushed, so it is important to neutralize rudders before touching down in a crosswind.

There is nothing unusual to report about the tri-gear Maule's handling, either on the ground or in flight. We made two crosswind takeoffs and landings at Spence Field using standard crosswind control techniques. In stiff winds the large vertical fin could present a problem by encouraging a tendency to weathercock, just as it does on tailwheel-configured Maules.

Maule had not yet conducted performance tests at the time of our visit, but little difference is expected between it and the tailwheel-configured MX–7. The tri-gear will be certified with a 180-hp Lycoming O-360 engine and constant-speed propeller. The same package in the MX–7 yields a cruise speed of 125 KTAS at 75-percent power. The nosewheel structure also is compatible with a 235-hp fuel-injected Lycoming IO-540 engine, which is an option on the MX–7, but the structure would have to be redesigned for the carbureted O-540, which also is available as an option.

The tri-gear will share the MX–7's 2,500-pound maximum gross weight, 70-gallon fuel capacity, and five-position flaps that include a seven-degree negative setting for cruise and 48 degrees extension. If the empty weight doesn't stray far from the MX–7–180's 1,370 pounds, the pilot will be able to top the tanks and still put about 700 pounds in the cabin. An optional third bench seat is available, but head and


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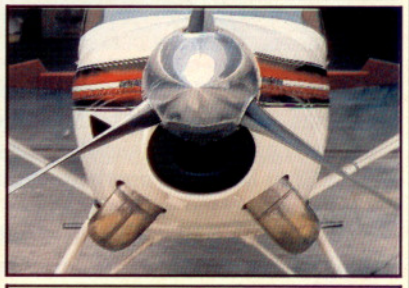

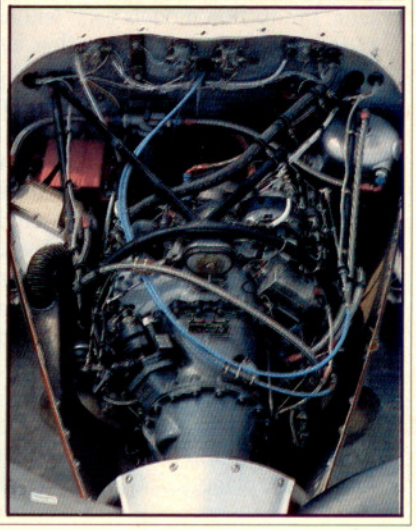

shoulder room is tight for anyone but small children.

Maule is projecting a price of $53,000 for its tricycle-gear model, including flight instruments, lights, and a Terra TXN-920 nav/com.

The turboprop Maule is aimed at operators who work in hot temperatures or at high altitudes, where there would still be plenty of power left in the 420-shp Allison engine. A 300-hp Lycoming IO-540 was considered as an alternative to a turboprop, but the 150-pound weight difference between the two engine installations was deemed unacceptable.

Maule has done a superb job of packaging the Allison. The nose has been extended five inches to avoid changing the center of gravity, and the three-blade, paddle-like prop, inlet scoop, and twin exhaust stacks combine for a pleasing, aggressive appearance. The crown-

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ing touch on the landplane prototype is its spats, a pair of tiny, trailing wheel-pants. The amphibian's spats, a pair of EDO 2500 floats, are anything but tiny. This is an airplane with stature.

Each of the prototypes has standard wing tanks that hold 70 gallons of kerosene. Production models each will have an additional pair of 15-gallon wing tanks for a total fuel capacity of 100 gallons, or about four hours' endurance. Three independent fuel pumps—the engine-driven pump, an electric main pump that is always on, and an auxiliary electric pump—force feed the engine. The continuous electric pump is needed to meet FAA certification requirements for uninterrupted fuel flow at high altitudes using either heated jet fuel or a cold mixture of jet fuel and avgas.

Both turboprops will be certified for the same maximum gross weight as their piston counterparts: 2,500 pounds for the landplane, 2,750 for the amphib. Each has a lower empty weight than the piston model, but payload is less because of the greater fuel capacity and heavier weight of kerosene compared to avgas. Fully fueled, the MX–7–420, the landplane version, is a two-person airplane. The M–7–420, the amphibian, would have to be flown solo.

The simple On/Off fuel selector, beefy condition and power levers, and a cluster of turbine engine gauges distinguish the turboprop cockpit from that of a standard Maule.

Performance is what you would expect from virtually doubling the horsepower. Don't try this at home, but around Spence Field they say that at 60-percent power and brakes locked, an Allison will drag the Maule attached to it across the ramp. Partial power for takeoff, climb, and cruise is the rule to stay within the 151-knot redline. The amphibian is airborne after a four-second takeoff run, according to Maule.

It was typical south Georgia hot and humid the day we flew. No matter. The turboprop Maule ascended like a rocket-assisted elevator, climbing at 3,500 fpm at 95 mph (82 knots). Maule test pilot James M. Butler has an easy way to set the power for cruise: Above 100 mph (87 knots), each 10 pounds of torque increases indicated airspeed 10 mph (8.7 knots). If the indicated airspeed is 145 mph (126 knots), the torque meter will read 45 percent.

Beta, which enables the propeller to be set at flat pitch, will be standard on both the landplane and amphibian. Landing rolls of 300 to 400 feet are possible, even with obstacles.

The turboprop project was initiated when the exchange rate began to tip in favor of overseas currency, which encourages purchases of U.S. products by foreigners. The first turboprop Maule is going to a private owner in Switzerland, who plans to fly it off of glaciers. Maule's West German distributor also has several turboprops on order. In this country, several Rocky Mountain ranch pilots have expressed interest, according to Maule. The landplane version is expected to sell for about $200,000, the amphibious model for about $250,000.

Some will chide the company for breaking with its tradition, but the MXT–7 and the turbine Maules are additions to the product line, not replacements. Before, if you weren't in the market for a piston-powered taildragger, you weren't in the market for a Maule. Now there is a Maule for all. □

	Maule MX-7-420	Maule M-7-420
Estimated base price:	$200,000	$250,000
Specifications		
Powerplant	Allison 250-B17C	Allison 250-B17C
Recommended TBO	3,600 hr	3,600 hr
Wing loading	15.8 lb/sq ft	17.4 lb/sq ft
Power loading	5.95 lb/hp	6.5 lb/hp
Empty weight	1,385 lb	1,980 lb
Max takeoff weight	2,500 lb	2,750 lb
Useful load	1,115 lb	770 lb
Payload w/full fuel	445 lb	100 lb
Fuel capacity, std	100 gal (670 lb)	100 gal (670 lb)
Baggage capacity	170 lb	170 lb
Performance		
Takeoff distance, ground roll	250 ft	350 ft
Rate of climb, sea level	3,700 fpm	2,200 fpm
Max level speed, sea level	131 kt	131 kt
Cruise speed/fuel consumption @12,000 feet	170 kt/25 gph	152 kt/25 gph
Service ceiling	20,000 ft	20,000 ft
Landing distance, ground roll	300 ft	400 ft
Limiting and Recommended Airspeeds		
Vx (best angle of climb)	65 KIAS	65 KIAS
Vy (best rate of climb)	86 KIAS	86 KIAS
Vmo (max operating limit speed)	131 KIAS	131 KIAS
Vs1 (stall, clean)	54 KIAS	54 KIAS
Vso (stall, in landing configuration)	43 KIAS	45 KIAS

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.