

M20R Ovation



AN ENCORE FOR MOONEY

*More moxie
in a new Continental-
powered model.*

BY MARK R. TWOMBLY

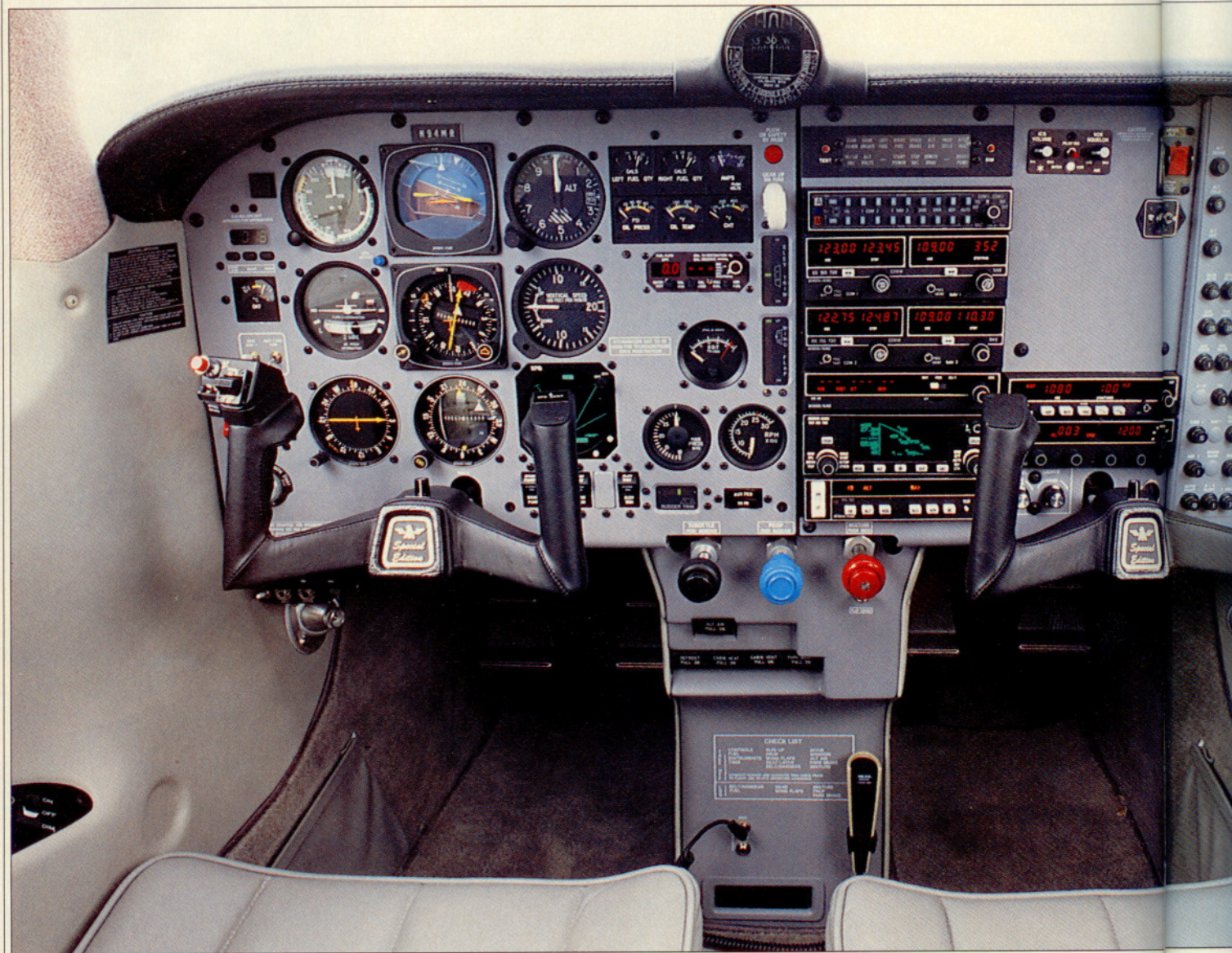
A new-aircraft rollout is a rare event in general aviation these days, and rarer still when it involves a new piston-powered airplane. The company that in the past decade has staged more new-model rollouts than any other piston manufacturer, Mooney Aircraft, chalked up another in late April. Following a round of speeches and with fanfare consisting of swirling smoke, snappy music, and dancing San Antonio Spurs cheerleaders, Mooney unveiled the M20R. Mooney is calling its new airplane the "Ovation." That's also the name of a guitar manufacturer, but Mooney no doubt hopes airplane people will associate Ovation with the word "standing." ■ The design and marketing goals behind the Ovation program can be stated in two words: performance and price. An obvious performance and price gap existed in Mooney's product line between the 200-horsepower M20J MSE and the 270-hp turbocharged M20M TLS. The Ovation fits right in the middle, with 190-knot-class cruise speeds at non-oxygen altitudes and a price that is almost exactly halfway between the MSE and TLS. Base price is \$205,750, which includes speed brakes. A fully equipped Ovation with a Bendix/King KFC 150

PHOTOGRAPHY BY MIKE FIZER





The new tapered cowl (above) is lower and shaplier than that of other Mooneys. The panel is light gray with silkscreened placards. Switches for exterior lights (above, right) have been moved off the panel to an overhead console. Rear seats (below, right) recline and fold down.





autopilot, KLN 90A GPS, and Stormscope lists for about \$295,000, according to Mooney.

The M20R shares the same long fuselage as the TLS, distinguishable by the extra-long rear side windows, but the similarities end at the firewall. Forward of that, the Ovation is all new. The engine is a normally aspirated (non-turbocharged) 280-hp Continental six-cylinder IO-550G. The tapered cowl has very small engine cooling inlets.

Though it is the largest-displacement powerplant in Continental's line, the 550 is an exceptionally smooth, low-vibration engine. A 300-hp version (at 2,700 rpm) powers the A36 Bonanza, and turbocharged variants are rated at up to 350 hp.

The engine's 280-hp limit in the Ovation is achieved by limiting maximum rpm (takeoff and continuous) to 2,500.

Why not go to 300 hp or more in the Ovation? According to Mooney, the 280-hp limit is dictated by certification standards for rudder force to maintain directional control in power-on stalls. The TLS's 270-hp limit is an engine limitation and is not related to certification standards for handling and control.

The 550G has a tuned induction system but not the altitude-compensating fuel pump used in the Bonanza. In that installation, the fuel pump begins to lean the fuel/air mixture as the airplane climbs through 3,000 feet pressure altitude. On the Ovation, the mixture must be manually leaned in the climb to maintain an optimum exhaust gas temperature (EGT).

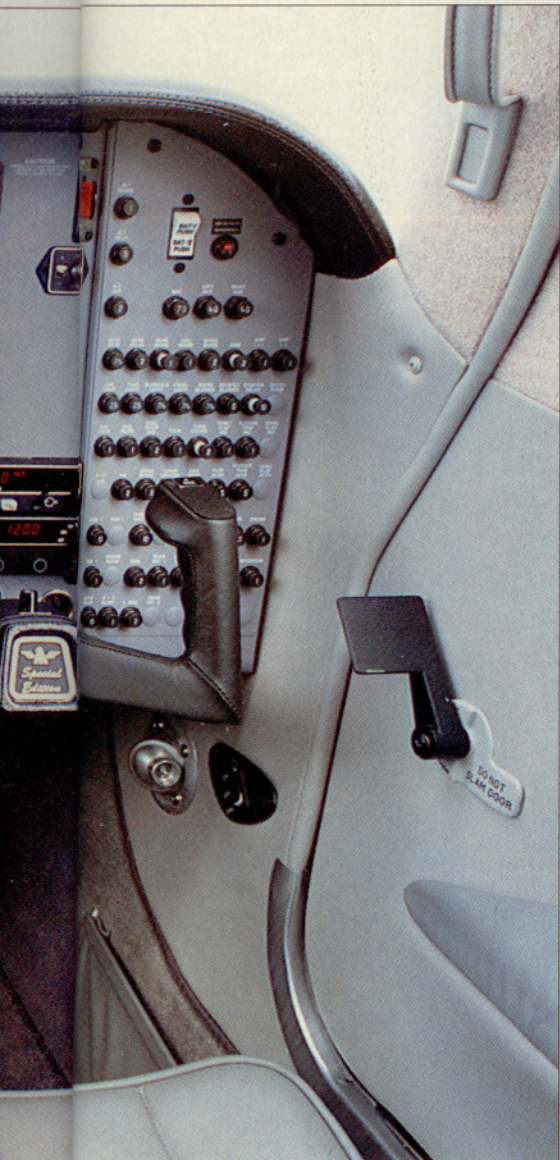
The ram-air engine cooling inlets on either side of the spinner are very small compared to those on the TLS, and smaller even than the inlets on the 200-hp Mooney MSE. Minuscule cooling inlets are becoming the fashion in general aviation. Witness Piper's new circular inlets on the Saratoga II HP and Seneca IV, LoPresti Speed Merchants' Comanche cowl, Lancair IV kit-plane, and others.

The Ovation does not have cowl flaps. Mooney says they aren't needed, that cylinder head temperatures (CHTs) stay within



limits even on hot-day climbs, and that in fact the oil temperature runs too cool. We saw nothing but green-arc CHTs during our day of flying the Ovation, but some skepticism seems in order on the issue of cooling efficiency. The 550-powered A36 Bonanza has large cooling inlets and cowl flaps. On AOPA's A36, engine temperatures were never a problem—until it was discovered that the CHT probe was not on the hottest cylinder. When the probe was switched to the proper cylinder, well, suddenly we discovered that all along the engine had been running a lot hotter than suspected. Beech had to design a kit to improve the flow of cooling air over the engine to lower head temperatures. Temperature probes for each cylinder are an obvious safeguard against such surprises. Unfortunately, the Ovation uses single-probe setups for CHT and EGT.

Ovation engine exhaust gases exit through a pair of small-diameter



pipes. The long pipes are faired and hug the belly. A negative pressure of 1 psi at the mouth of the pipes helps scavenge exhaust gases from the system. The engine has a 2,000-hour time between overhauls (300 hours more than the Bonanza variant) and, like airframe and avionics, is protected by a two-year manufacturer's warranty.

Mooney conducted a flyby of the Ovation at the rollout ceremony, and the strongest impression made on the assembled guests was the unobtrusive sound level of the airplane as it swept back and forth in front of the crowd. Mooney says that a 1,000-foot-agl fly-over test showed the Ovation to be 4 decibels quieter than the TLS.

Shortly after hosting the rollout, Mooney's vice president of marketing,

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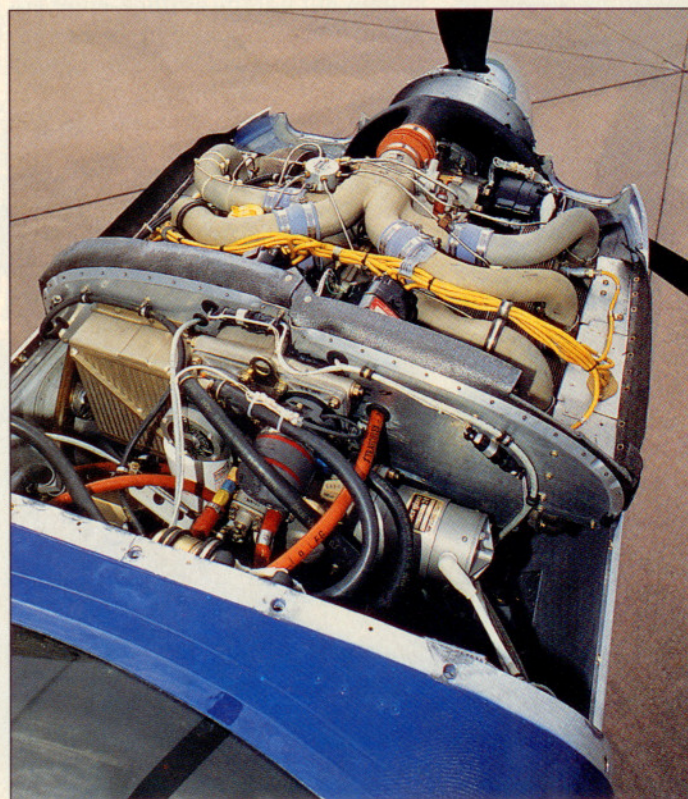
Jeff Dunbar, took the Ovation on the road for a round of customer and press demos. He spent a day in Frederick, Maryland, flying with various AOPA Pilot editors.

Dunbar brought the second prototype, and we had no trouble recognizing the airplane when it arrived. It looked like it had made a low pass over Austin, Texas, and gotten tangled up in the big state flag flying over the capitol building. The Lone Star State paint scheme is a public relations ploy to attract attention to the Ovation, and it certainly does that. No word yet on whether Mooney plans to offer Ovations painted in the state flag of your choice.

Beneath the paint, the Ovation is distinguishable from other Mooneys by the long, sculpted engine cowl. Mooney engineers expanded the firewall to avoid the Coke-bottle look of the TLS cowl, which is at least as wide at the nose as at the firewall. The engine thrust line was lowered an inch from that of the TLS for reasons of aesthetics and engine-cowl clearance, according to Mooney. The cowl was tufted and, based on flight-test observations, the shape tweaked to



Low or high, the Ovation is a speedster. The Continental IO-550 engine nets 280 horsepower at 2,500 rpm. The engine features a tuned induction system and 2,000-hour TBO.





The Ovation cowl is noteworthy for its tiny cooling inlets. Cowl flaps are unnecessary, according to Mooney. Negative pressure helps scavenge exhaust gases from small-diameter, faired pipes.

minimize drag. It slopes gently down from the base of the windshield and is remarkably free of bumps and protrusions.

After poking and prodding around the outside of the airplane, we climbed inside to go flying. Before firing up the engine, I spent a few minutes looking over the new interior. Those who think new Mooneys are simply warmed-over, expensive versions of the short-body Mooneys of old haven't yet seen the inside of the Ovation.

There is no comparison. The headliner is covered with an attractive wool and synthetic cloth, and Mooney has dispensed with copious stretches of thin plastic Royalite interior panels in favor of panels made of a composite

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fiberglass-foam core sandwich. The new panels are stronger and stiffer and do a better job of attenuating noise.

Rocker-type switches for exterior lights have been moved off the instrument panel and onto an overhead panel. Indirect fluorescent lights have been replaced with individual overhead spots. Both front seats adjust vertically, and the glareshield and yokes are wrapped in black leather. The glareshield is made of the same strong composite sandwich material as the interior panels.

Mooney also has done away with a small bin attached to the nosewheel pedestal that was used as the hiding place for the airplane handbook. Removing the bin opens up a surprising amount of room on the cockpit floor and really adds to the feeling of spaciousness in the cockpit.

The metal instrument panel is painted light gray with silkscreened placards instead of decals. The only other change to the panel is the use of a larger Alcor EGT gauge, which will help in more precise leaning of the 550 engine.

The Ovation has the same 3,368-



pound ramp weight as the TLS. The prototype weighed 2,318 pounds empty, for a useful load of 1,050 pounds. With the 89-gallon-capacity tanks approximately two-thirds full and three souls on board, I figured our ramp weight at about 3,218 pounds, some 150 pounds under the limit.

We began the flight with a touch and go followed by a low pass for photo purposes. Other than the pressurized but far heavier Mooney Mustang, the Ovation has the most power ever made available in a factory-built Mooney, and it shows. On one circuit, the initial climb was made with landing gear, takeoff flaps, and speed brakes extended. I didn't check the vertical speed indicator, but we were ascending at a good rate. Cleaned up and established in a 120-KIAS cruise-climb, the airplane made its

way to altitude at a steady 1,000 feet per minute. (The prototype is fitted with a 75-inch-diameter propeller; the production airplane's will be 73 inches, which will have negligible effect on performance, according to Mooney.) The engine is canted 2 degrees to the right to reduce the effects of torque, but electric rudder trim still is standard on the airplane.

The Ovation is at its most efficient around 10,000 feet, where it can still pull 75-percent power for true airspeeds approaching 190 knots. We went to 11,500 feet and saw 185 KTAS on 15 gallons per hour. Even higher cruise altitudes are realistic choices for oxygen-breathing Ovation pilots to top weather or take advantage of jet-stream winds.

So are lower altitudes. Top of the green on the airspeed indicator is 174 knots. Down low, the Ovation can be cruised at a relatively high power setting of 24 inches/2,400 rpm with a 9- to 10-knot margin below V_{NO} .

Mooney was still conducting certification flight tests in early June and had not prepared official performance charts. Certification was expected by the end of June.

Factory-installed speed brakes make rapid power-on descents possi-



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ble. You can get down quickly without the worry of shock-cooling the engine.

Landings are routine Mooney except that slightly slower approach speeds seem in order to avoid prolonged float: 75 KIAS on short final is plenty, keep the nose up on touchdown to avoid wheelbarrowing, and easy on the brakes until there's plenty of weight on the wheels.

Since buying Mooney 10 years ago, Alexandre Couvelaire and his financial partner, Michel Seydoux, have ultimately been responsible for six new Mooney models: the 252, the PFM (Mooney Porsche), the 205 Lean Machine, the Advanced Trainer System (ATS), the TLS, and now the M20R Ovation. The old distributor-dealer sales system was scrapped in favor of the lean and efficient Mooney Direct

network. Mooney divides the country into five regions, each represented by a factory-employed salesman who identifies and responds to potential customers and demonstrates new aircraft. Mooney also is expanding its international sales efforts and contacts.

Couvelaire, a diminutive Frenchman with boundless energy who operates a business- and transport-jet charter company based at Le Bourget Airport outside Paris, had high hopes when he purchased Mooney that the general aviation market was poised for a strong comeback. That has not occurred, of course, but among piston manufacturers, Mooney has been the most active at introducing new models. In doing so, Mooney has cornered about 50 percent of the single-engine retractable

market and nearly 75 percent of the single-engine turbocharged market. Under the guidance of company Chief Executive Officer Jacques Esculier, Mooney has expanded its subcontract work with Boeing, Lockheed, Bell, and others to help cover overhead costs and smooth out the financial ups and downs of the general aviation market.

Even as he was introducing the Ovation at the rollout ceremony, Couvelaire was bemoaning the lack of real innovation in general aviation. "This is not the big revolution I had hoped would appear," he said. He is correct, but it may be naive on his part to expect a revolution, whether it involves engine, airframe, avionics, or sticker price. Couvelaire can, however, point with satisfaction and pride to his company's successful efforts to continually evolve the basic Mooney design. The results may not advance the technological state of the general aviation art—the Mooney Porsche being the one arguable exception—but they do give Mooney the distinction of being the most innovative piston manufacturer in the business, bar none. In these tough industry times, that probably deserves a standing Ovation. □