New Mooney Eagle2

Mooney Aircraft Corporation's formula for success is pretty straightforward: Take a simple, sturdy, proven airframe and periodically modify it for increased performance, advanced avionics capabilities, and more modern styling. Because the Mooney's basic structure and shape persist through virtually all the models produced in the company's 53-year history, it's easy for the casual gawker to address all Mooneys as generic clones. (As in "Oh, there goes a Mooney," not "Say, that's an M20K—the one that came out in the late 1970s.") Mooney savants know better. Since 1953, some 23 different Mooney types have been cranked out of the company's Kerrville, Texas, plant. A plant, I might add, that retains its mid-1950s' look and feel.

Going the Eagle one better

Mad about the M

BY THOMAS A. HORNE

PHOTOGRAPHY BY MARK SCHAIBLE


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Mooney

A big part of the confusion about Mooney identity has to do with the company's elaborate nomenclature. You could say that most Mooneys have at least two names—their official type designators (that's the one with the M20 prefix) and their less starchy, more memorable marketing monikers. Some Mooneys have up to four different descriptors. An M20J, for example, can be a Mooney 201, a Mooney MSE, a Mooney AT, a Mooney 205, or an Allegro. An M20K can be a Mooney 231, 252, or an Encore. (The 201, 205, 231, and 252 refer to those airplanes' top speeds, expressed in miles per hour.) The M20L is also the Mooney PFM, or Porsche Mooney.

The M20M was initially called the Mooney TLS, and then changed to today's Bravo ($505,000), which is the company's current top-of-the-line, 270-horsepower, turbocharged Lycoming TIO-540-powered, 220-knot offering. Next in the current Mooney line is the $445,000 M20R Ovation2, a 280-hp Continental IO-550-G-powered, 190-kt model. Until very recently, the $323,000 M20S Eagle, with its Continental IO-550 (the same engine as that used in the Ovation2, but derated to 244 hp by limiting the propeller to 2,400 rpm) and 180-kt maximum speed, was the company's lowest-priced model.

The new bird

The newest Mooney—the Eagle2 (type designator: M20S)—is the replacement for the Eagle (see "From the Mooney Mold," February 1999 *Pilot*) and Mooney's entry-level offering in its current, three-airplane fleet. While billed as a low-cost model (it's all relative; the standard Eagle2 goes for $360,000), the Eagle2 is loaded with comfort and performance features that improve considerably on the original Eagle.

Although 23 Eagles were sold last year alone, Mooney officials listened to their customers and came up with a plan to make a good airplane even better. Complaints about lengthy takeoff runs under hot-high-heavy conditions brought about the decision to outfit the Eagle2 with a three-blade McCauley propeller. Mooney says that the new prop gives the Eagle2 a 33-percent improvement in takeoff performance over the "old" Eagle. At sea level and under standard, no-wind conditions the Eagle2's takeoff distance over the FAA-standard 50-foot obstacle computes as 2,400 feet; its predecessor's distance works out to about 2,600 feet. At a 5,000-foot density altitude the comparison is 3,500 feet versus 3,700 feet.

What makes this improvement in takeoff performance remarkable is that the numbers mentioned above are for a maxed-out, fully loaded Eagle2—which has a 3,300-pound maximum gross weight. The Eagle's maximum gross weight is 3,200 pounds, or 100 pounds less. The propeller's third blade adds 15 pounds to the airplane's basic weight, so the Eagle2 has an 85-pound advantage over the plain-Jane Eagle in the useful load department.

Panel power

Like the Bravo and Ovation2, the Eagle2 has a standard-equipped panel that would make a vintage Mooney driver's jaw drop. Gone is the row of Mooney-signature analog engine gauges beneath the pilot's half of the glareshield, replaced by a new row of larger analog gauges that incorporates digital readouts as well. To the immediate left of this row is a grouping of digital displays that shows fuel quantity in gallons, fuel flow, electrical system voltage and load, plus outside air temperature and vacuum pressure. Other nice features include an S-Tec System 30 two-axis autopilot with altitude hold, heading mode, and nav coupling to VOR, GPS, and localizer sources. Glideslope coupling isn't available with this standard unit. A King KCS 55A slaved horizontal situation indicator (HSI) is also standard-issue, as is the popular

Mooney went upscale with the new paint scheme for the Eagle2, using metallic paint in contrasting top and bottom colors.


Eagle2
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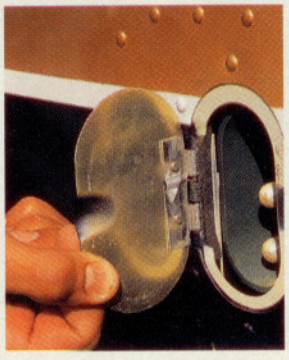
Garmin GNS 430 GPS nav/com and its knockout color moving-map display. A Garmin audio/intercom panel and transponder are also part of the stock package.

The Eagle2's electric rudder trim is yet another welcome addition to the standard package. Anyone who has ever flown a Mooney through a long climb will tell you that rudder trim would be a nice-to-have feature. Well, veteran Mooney drivers, your suffering days are over. Just depress the Eagle2's rudder trim panel switch until the LCD indicator slews over to the Takeoff range and relax. Your takeoffs and climbs won't require nearly the boot force (get it?) that you'd have to use in earlier models. Is it a trivial thing? Could you live without it? Maybe, and yes. But rudder trim helps reduce workload and distraction, most other airplanes in this category have it, and any airplane with the torque effects of a 550-cubic-inch engine *ought* to have it.

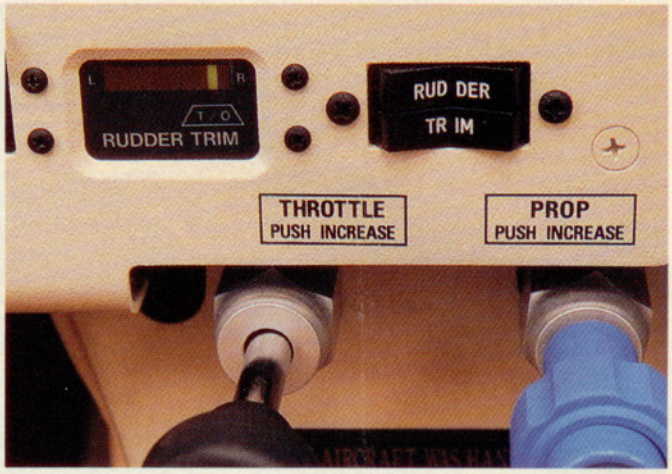
If this isn't enough to suit you, then there's plenty of panel space to accommodate other hardware from the options list. For $6,500 you can exchange that GNS 430 for a GNS 530, which has an even larger, more glorious color display than its "little" brother (see "The Big Picture," p. 91). A Goodrich WX-500 Stormscope ($8,000) is available, as is a Goodrich SkyWatch traffic avoidance system ($29,600), which is also on the options list. Both of these units can display their information on the GNS 430's or 530's screen.



The Eagle2, like the Ovation2 and Bravo, uses a 24-volt electrical system with dual, 10-ampere/hour batteries. The batteries are in the tailcone, and in normal operations you select one or the other battery using a split-panel switch over on the right side of the instrument panel. While one battery is active, the other is being trickle-charged. This system reminds me of the dual-battery system used in the Mooney PFM, which was the first of the "long body" Mooneys (and needed the battery weight in the back for center-of-gravity purposes), and which has a fully electronic ignition system.

Known ice and other serious options

Though the Eagle2 is positioned as the gateway airplane to the Mooney fleet, you can order other options that give it capabilities to match those of much higher-end airplanes. One is the TKS "weeping wing" ice protection system ($48,250), which is certified for flight into known icing conditions (see "Weeping Wings for Singles," February 1995 *Pilot*). This system pumps a glycol-based fluid through tiny pores in titanium leading-edge panels, which prevents or eliminates ice accretions on the protected surfaces (these include the wings, elevator, vertical stabilizer, propeller, and pilot's side of the windshield). A two-speed pump delivers the fluid, and a standby alternator provides a redundant power source. Expensive? Yes, but any pilot with the need to



The Eagle2 has a standard-equipped panel that comes complete with just about every feature a pilot could wish for—and room to add more. The electric rudder trim is a welcome addition, and there's plenty of room for pilot and passengers.

regularly fly IFR in the colder months will find this option invaluable to his or her peace of mind—not to mention the passengers'.

A built-in oxygen system ($6,500) with four masks and outlets is another nice-to-have option—to allow on-top flying, handle high minimum en route altitudes (MEAs), and to let owners take advantage of stronger winds aloft. Finally, there's a $21,200 air conditioning option for those who want no-sweat summer operations.

No more plain-Jane

Eagles came with pretty much an all-white paint scheme, with two small, wavy ribbons. With the Eagle2, Mooney went upscale with metallic paint and contrasting top and bottom colors, separated by the wavy-line scheme. Mooney says that the new paint job "better fits the airplane into the product family." I say it just plain looks better.

Riding the rails

I have to admit it: I like Mooneys. What some call a cramped cockpit (even though it really isn't, unless you've got two 300-pounders up front), I call comfortable. While some declare Mooney ailerons as too heavy, I appreciate the airplane's lateral stability—especially in instrument conditions. You have this sports-car feeling of being strapped right to the airframe, there's gobs of legroom, and there's a sense of unity with the design. The Eagle2's leather seats (with adjustable lumbar support) help out in the comfort department and are an improvement over the standard cloth seats that were offered in the Eagle.

Adding to the feeling of security is the Mooney welded-tube steel fuselage structure and one-piece wing spar. You're surrounded by a very strong steel cage, and that spar stretches from wing tip to wing tip. Mooney boasts that none of its airplanes has ever had an in-flight structural failure and says that in static load tests the test stand failed before the wings did. Take a stroll through the Mooney factory and you'll come away with a real appreciation of the Mooney's simple, strong design.

Like the Ovation2, the Eagle2 uses the Continental IO-550-G powerplant. Starting and managing the engine is a snap. For takeoffs and climbs leave all the engine controls full forward, although Mooney recommends leaning the mixture to the exhaust gas temperature (EGT) gauge's blue arc for best power.

Best-power cruise will yield anywhere from the advertised 180 knots to what one company representative said could reach as high as 184 kt.

At best-power cruise and a pressure altitude of 6,000 feet under standard conditions, engine settings would be 21.5 inches of manifold pressure (mp), 2,400 rpm, and a 14.8-gph fuel flow—which is 50 degrees Fahrenheit rich of peak EGT. This would give you a 180-kt true airspeed and an IFR range of approximately 760 nm. Cruise at 10,000 feet with the

SPECSHEET

Mooney M20S Eagle2

Base price: $360,000

Specifications

Powerplant.....Teledyne Continental IO-550-G, 244 hp @ 2,400 rpm
Recommended TBO .....2,000 hr
Propeller .....McCauley constant speed, ...three-blade 73-in dia
Length.....26 ft 9 in
Height .....8 ft 4 in
Wingspan.....36 ft 1 in
Wing area .....175 sq ft
Wing loading .....18.9 lb/sq ft
Power loading .....13.5 lb/hp
Seats.....4
Cabin length .....10 ft 6 in
Cabin width.....43.5 in
Cabin height .....44.5 in
Standard empty weight .....2,200 lb
Maximum gross weight .....3,300 lb
Useful load .....1,100 lb
Payload w/full fuel .....650 lb
Maximum takeoff weight.....3,300 lb
Maximum landing weight.....3,300 lb
Fuel capacity, std.....81 gal (75 gal usable) 486 lb (450 lb usable)
Baggage capacity .....120 lb, 20.9 cu ft

Performance

Takeoff distance, ground roll .....1,400 ft
Takeoff distance over 50-ft obstacle .....2,400 ft
Maximum demonstrated crosswind component .....13 kt
Rate of climb, sea level .....1,150 fpm
Cruise speed/range/endurance w/45-min rsv (fuel consumption)
@ full throttle, best power, 8,000 ft .....178 kt/760 nm/4.25 hr (88.8 pph/14.8 gph)
@ 55% power, best economy, 12,000 ft .....162 kt/1,110 nm/7.1 hr (44 pph/7.3 gph)
Service ceiling.....18,500 ft
Landing distance over 50-ft obstacle .....2,550 ft
Landing distance, ground roll .....1,350 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb).....85 KIAS
V_Y (best rate of climb) .....100 KIAS
V_A (design maneuvering) .....125 KIAS
V_{FE} (max flap extended).....123 KIAS
V_{LE} (max gear extended) .....165 KIAS
V_{LO} (max gear operating)
Extend .....140 KIAS
Retract .....104 KIAS
V_{NO} (max structural cruising).....174 KIAS
V_{NE} (never exceed) .....195 KIAS
V_R (rotation) .....76 KIAS
V_{S1} (stall, clean) .....66 KIAS
V_{SO} (stall, in landing configuration) ..59 KIAS

For more information, contact Mooney Aircraft Corporation, Louis Schreiner Field, Kerrville, Texas 78028; telephone 800/456-3033; fax 830/896-8180; or visit the Web site (www.mooney.com).

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.

engine dialed back to a 45-percent-power, best-economy setting (14.1 inches mp, 2,400 rpm, and 7.3 gph—which is 50 degrees lean of peak EGT), and you get a 145-kt true airspeed and an IFR range of 1,250 nm.

Landings? Well, let's just say that when Mooney lists an approach speed, you'd better have it nailed by the time you near the runway threshold. In the Eagle2, these speeds run from 68 kt (at a 2,600-lb gross weight) to 75 kt (at maximum gross weight). Then bleed off airspeed until you touch down in a stall attitude. Try to land too fast and you'll float—or bounce.

i Links to additional information on Mooneys may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

The optional $6,650 Precise Flight speed brakes come in very handy in the pattern because they can help you descend and slow down at the same time, and help keep you planted once you've arrived.

Strength, a slippery airframe, and fuel efficiency—all of these Mooney traits endure in the Eagle2. Its incremental improvements should make this airplane more desirable in the high-performance market—a market that's shot through with Mooney owners already. In fact, the company says that most owners of high-performance singles and twins—if they don't already fly Mooneys—owned one in the past. That says a lot about Mooneys, and explains their ongoing appeal. AOPA

E-mail the author at thomas.horne@aopa.org