

MOONEY MSE

Limited or otherwise, it's the efficiency king.

BY MARK R. TWOMBLY

We're southbound out of Chicago's DuPage Airport on

a 15-nautical-mile hop to Clow International, a small airport with a big name that lies southwest of the Windy City. Our transportation, N9139Y, a new Mooney MSE, was washed at J. A. Air Center at DuPage and is looking its Claret Red and Really White best for the customer who awaits at Clow. Don Dwyer, Mooney's Midwest sales representative, is in the right seat, and





he's feeling pretty good. The Clow demo flight will be his second of the day. The first, at a small rural strip in the midst of corn and soybean fields near Dwight, Illinois, went very well. The customer there is a surgeon, and Dwyer is confident of a sale. If doctors are excellent prospects to buy new airplanes—and they are—surgeons are even better.

The physician is interested in an MSE Limited. The Clow customer is considering a full-fledged MSE. There are more similarities than differences between the two models. Each is based on the M20J airframe and 200-horsepower Lycoming IO-360 engine. The M20J has been the anchor of Mooney's oft-changing product line since 1976 and is the basis for three of the four airplanes in the company's current lineup: the ATS, which is marketed as an advanced trainer and sold only to flight schools; the MSE; and

the Limited. The fourth member of the team is the turbocharged 270-hp TLS, which is based on the 2-foot-longer M20M airframe.

The MSE customer gets to specify the avionics, paint scheme and colors, and other features. The Limited, on the other hand, is delivered with a standard, no-variations interior finish, exterior paint scheme with blue and white stripes, and avionics package. The Bendix/King package consists of an audio panel; dual nav/coms—one with glideslope receiver—and indicators; DME, ADF, and indicator; transponder; altitude encoder; and microphone. There aren't any extras, but it's a fully capable IFR panel.

Building Limiteds to common avionics, paint, and interior specifications saves time and money on the production process. Mooney passes the savings on to customers. List price

of the MSE Limited equipped with the standard radio package is \$144,900.

Some options are available, but the list is short: a Bendix/King KAP 150 autopilot, Northern Airborne Technology intercom, and copilot brakes and rudder pedal extensions. A Limited with all the options (would it then be a Slightly Limited?) would retail for about \$160,000.

In fact, many customers who initially are interested in a Limited switch to an MSE because of the longer and more varied options list. Base price of the MSE is \$128,890. Most go out the door equipped with Bendix/King KAP or KFC 150 autopilot, HSI, KLN 88 loran, and other items for a bottom-line price of about \$183,000.

Besides an attractive paint scheme and color choice, the 1991-1992 MSE features a 160-pound increase in maximum gross weight. The increase applies to the Limited as well. The basic

empty weight of the airplane has not changed, so every pound goes toward additional payload. This is important. One area where past Mooneys have been faulted is in weight-carrying capacity. Of course, it's possible to trade fuel for people if you find you're at gross weight with one passenger still to board, but the trade is a costly one in terms of range and endurance. One 170-pound passenger is equivalent to about 45 percent of the fuel capacity. The gross weight increase, to 2,900 pounds from 2,740 pounds, essentially allows for another passenger without having to sacrifice fuel. Full-fuel (64 gallons/384 pounds usable) payload on a typically equipped MSE is more than 700 pounds, so it is now a true four-place airplane.

The good loading flexibility that the MSE's additional payload provides was evident on a departure from Chicago's Meigs Field. Following Dwyer's demo at Clow, we flew to Meigs to join up with AOPA Pilot staff photographer Mike Fizer. Fizer does not travel light. His equipment—several overstuffed camera bags, 5-foot long duffels for transporting light stands, and hard-sided cases for the lights—weighs in at about 225 pounds. In spite of the equipment's bulkiness and weight, we managed to load it, the three of us, and our suit bags and



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paraphernalia into the Mooney, which held about 42 gallons of fuel at the time, without exceeding gross weight.

It proved easier than expected to load equipment into the baggage area, considering the Mooney's relatively small, chest-high baggage access door. You lower items down into the baggage area, which makes it convenient to fill and empty the area from floor to ceiling.

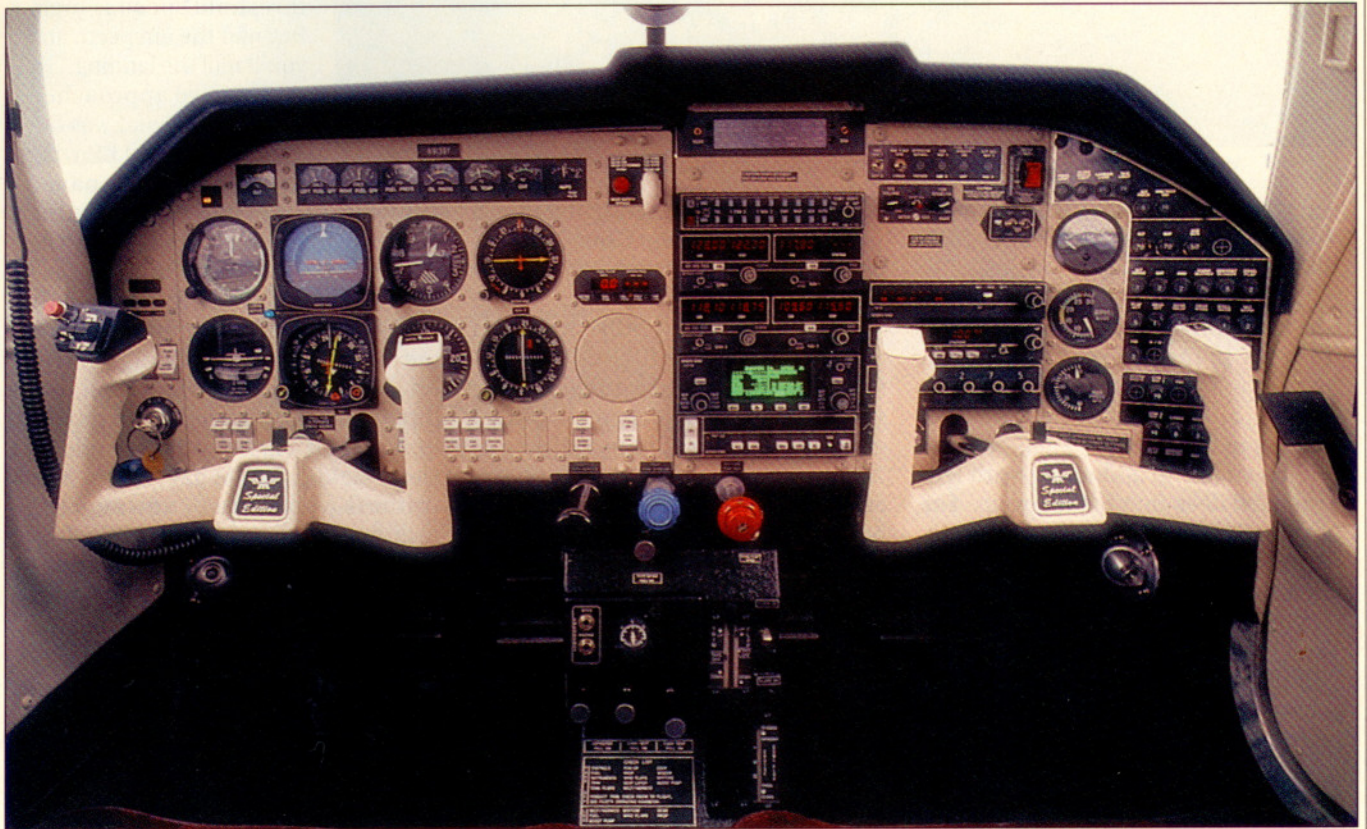
One other nice feature is the folding

backs on the rear seats. To stow the largest pieces of Fizer's gear, we removed the cushions on one rear seat and folded the back all the way forward. The result was a station-wagon-size cargo area.

Besides the gross weight increase, other changes incorporated in new MSEs are a larger brake master cylinder for better braking effectiveness and flap position preselect. Mooney uses a small toggle switch located on the lower pedestal to control the electrically actuated flaps. Preselect positions include 15-degree takeoff/approach flaps, 33-degree landing flaps, and retracted.

The Mooney panel is high-density real estate. Mooney has been ingenious in figuring out where to place everything, with room left over to grow. Engine gauges are grouped horizontally in the pilot's line of sight, and the annunciator panel at the top of the avionics stack gives a quick and positive indication of a problem. Electrical rocker switches, which also function as circuit breakers, are large, conveniently placed, and well-labeled.

The left horn of the pilot's yoke incorporates a collection of buttons: autopilot disconnect, control wheel steering, pitch trim, and microphone button. The buttons stick out from the yoke, which is relatively close to the



body. Occasionally while unfolding a chart, my hand or arm would bump against the buttons, causing the autopilot to disconnect and beep at me in protest.

N9139Y's almost-filled panel included an optional Shadin fuel totalizer and KLN 88 coupled to the HSI and certified for enroute and terminal IFR flight. Missing was a lightning detection device, but there was a blank hole in which to put one, as well as a few other places to tuck whatever gadgetry appeals to the pilot.

What's not to like in the MSE? The beefs are few and minor. The cowl flap position indicator is next to the flap indicator, but inexplicably, the cowl flap toggle switch is hidden below the bottom edge of the instrument panel. It needs to be placed adjacent to its indicator, the same as the flap switch. The

rear seats recline independently to four settings.

The fuel-injected Lycoming is tightly cowed, and hot starts are common. The four-cylinder engine gives a shudder when you start it and a shake when you shut it down. The one in N9139Y skipped a few beats at idle but smoothed out when power was applied.

Mooney recommends 15 degrees of flaps for takeoff, although flaps seems to have little effect on takeoff perfor-

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is heavier than expected. The advantage is that the Mooney is very stable in cruise, a trait that should please buyers of autopilot-less Limiteds.

A pilot who described himself as a relatively low-timer called one day to ask for confirmation of rumors he had heard. He flew a Skyhawk and was considering moving up to a Mooney. But he had been told that a Mooney is difficult to land, has dangerous stall/spin traits, and is a terror in icing conditions. The misinformation he had been fed had very nearly doused his enthusiasm for buying a new airplane. In two years of flying a Mooney Porsche, I also encountered instances of amazing misconceptions about Mooneys in general, ranging from handling difficulties to tiny cabins.

I've never experienced any of the traits mentioned by my caller or other

detractors, although the cabin dimensions of older Mooneys are much tighter than new models. Routine, good landings in a Mooney are the result of good speed control. With its long, clean wing and short landing gear, the airplane will encounter substantial ground cushion and will float a fair distance if the runway threshold speed is high. But nail the airspeed, and you'll nail the landing.

When we approached Dwight, the wind was out of the north and blowing strong. The only paved

runway at Dwight is oriented east/west, so we elected to use the grass runway. The short- and soft-field approach and landing were easily managed, with no complaints from the airplane. Later, returning to Frederick, Maryland, we would fall into line in the pattern behind a pair of Cessna 152s. Apparently, it would be short-field practice day, for the two trainers would touch down on the numbers, roll a few hundred feet under heavy braking, and exit on the first taxiway. The Mooney will meet the first turnoff challenge with relative ease, and we will taxi to the ramp hard on the heels of the Cessnas.

Stalls, at least those practiced under controlled conditions, are not difficult to handle. There is adequate buffet to warn of an impending stall, the break



Mooney salesman Don Dwyer (white shirt) pitches a customer on the virtues of the MSE.

suction gauge also is located on the lower pedestal, about as far away from the instrument scan as is possible.

Finally, there is but one outlet in the cabin for heated air, and that is at the base of the pedestal. A large volume of toasty air emanates from the outlet, but it doesn't do your feet much good.

You sit low in a Mooney, with legs extended deep into the footwells. The popular characterization of the airplane as a sports car probably is due as much to the seating position as anything. Shoulder- and headroom is fine for almost any size adult, and legroom is plentiful. Five-hour-plus flights can be made in comfort. The vertically adjustable front seats are a nice feature, especially if the airplane will be flown by several pilots. The

mance. Recommended cruise climb speed is 90 to 100 knots, but 110 gives better forward speed and visibility with little degradation in climb rate.

Where the MSE really shines, of course, is in cruise flight. It is marvelously efficient, delivering true airspeeds up to 165 knots on about 12.5 gallons per hour. That would be at 7,000 feet msl and 75-percent best-economy power, achievable only at a noisy 2,700 rpm. During our two days of traveling around the Midwest, we used a more tolerable 2,500 rpm and saw a consistent 155 knots true airspeed. We opted for best-power mixture setting of about 10 gph.

Someone who has never flown a Mooney will find that control response is immediate and positive, but the force required, especially for brisk banking,

MOONEY SCHOOL

Expanding your personal envelope

BY SETH B. GOLBEY

THE best thing about buying a new Mooney is the joy of owning one of the fastest and most efficient singles that general aviation can provide. The second best thing is the knowledge that you'll be able to derive every bit of the performance and utility the airplane has to offer. This is because type-specific training at FlightSafety International's San Antonio Learning Center is included in the price of every new Mooney.

Whether you have experience in Mooneys or are transitioning to the marque, whether you are instrument-rated or VFR only, FSI will tailor the course to

Owners of turbocharged Mooneys receive training in high-altitude flight, including engine operation, climb and descent planning, ATC considerations, and normal and emergency use of oxygen equipment.

The resources of FSI's entire training facility—from videotapes on dozens of aviation subjects to computer-assisted education programs to plenty of good, hot coffee—are available to students 24 hours a day.

The classroom training is divided into three blocks totaling 10.5 hours and includes new engine care; aircraft systems,

normal and maximum-performance takeoffs; and emergency procedures, including engine failures, electrical malfunctions, and landing gear malfunctions. Instrument-rated pilots also practice holding pattern procedures and instrument approach procedures, including NDB, VOR, and ILS approaches, plus at least one circle-to-land maneuver. Training sessions in the simulator and the airplane last about two hours; the sessions also include about 1.5 hours of preflight briefing and half an hour of post-flight debriefing.

The simulator, in addition to saving time and fuel and reducing wear and tear on the airplane, provides an excellent opportunity to practice emergency procedures and experience equipment failures that would be risky in a real airplane. The visual system uses a rear-projection system that provides a field of view of about 45 degrees either side of the nose and perhaps a little less in the vertical plane.

In addition to the obvious safety advantages that accrue from successfully completing the Mooney Proficiency Program, there's a financial incentive as well. Through the Mooney *Direct Preferred Insurance Plan*, rates as much as 50 percent lower than standard rates for comparable coverage are available, according to Mooney (call 800/635-9753 for a quotation).

Initial or transition training in a new aircraft type is only half the answer to attaining and maintaining pilot proficiency, of course. FSI offers graduates of its initial Mooney course two-to-three-day recurrency courses that may include a BFR and/or ICC, as desired. A number of other courses are available, ranging from a one-day recurrency program for pilots with considerable experience in type to a four-day course for low-time pilots or those with little high-performance aircraft time to a six-day course for non-current instrument pilots or non-instrument-rated pilots who plan to continue on to an instrument rating course. An FSI instrument rating course generally takes an additional five or six days. Again, courses are tailored to the needs of the individual student. Prices vary but average \$450 a day.

To schedule Mooney training, contact FSI's San Antonio Learning Center at 9027 Airport Boulevard, Post Office Box 16540, San Antonio, Texas 78216; telephone 512/826-6358. For more information on this and other FSI single-engine type-specific training, call 800/227-5656 (in Kansas, call 316/943-2140 collect). □



your needs using a combination of classroom discussion, a visual simulator that replicates a Mooney cockpit, and flight time in your new airplane. Pilots completing the Mooney Proficiency Program will receive a biennial flight review and/or an instrument competency check, as appropriate.

All students receive training in basic flight maneuvers, traffic patterns, and takeoff and landing techniques. A thorough familiarization with avionics equipment, including autopilots, is conducted. Each of the airplane's systems is explored in depth, making use of the many excellent teaching aids FSI has developed for the program.

VFR pilots also review basic instrument techniques to prepare for inadvertent encounters with bad weather.

IFR pilots receive additional instruction on regulations; departure, enroute, and arrival procedures; instrument approaches; charts; and preflight planning.

including fuel, induction air, propeller, vacuum, environmental air, electrical, trim, flight controls, gear and flaps, and, if appropriate, supplemental oxygen and speed brakes; weight and balance; performance; emergency procedures; and owner's maintenance responsibilities. A written test is completed at the conclusion of the classroom training.

Practical aspects are stressed: Students use information from the POH of their own airplane in the classroom sessions to compute actual weight and balance problems and perform flight planning, starting with the flight home they will soon make in their new Mooney.

In the eight hours of simulator training and eight hours of aircraft flight training, students practice basic instrument airwork; partial panel, with a failed attitude indicator; missed approach procedures; VFR airwork, slow flight, and approaches to stalls; landing patterns, including normal, short-field, and no-flap landings and



is gentle, and the recovery technique is standard. I didn't sample the MSE's spin entry and recovery characteristics for the simple reason that intentional spins are prohibited in the Mooney, as they are in all airplanes certified in the Normal category.

The Mooney does experience a noticeable loss of airspeed when the laminar flow wing is contaminated in moderate to heavy precip or ice, but handling is not affected. Deicing equipment is not available that would permit flight into known icing.

Fifteen years ago, the M20J 201 ushered in the modern age of Mooney. The company has been fussing with the J model ever since, and they really do have it honed. The cabin is comfortable and well-appointed, the panel is up to date, and the airframe is all buttoned up and smoothed out for maximum efficiency.

A Mooney has always been regarded as a highly desirable personal airplane—fast and maneuverable, and it just seems to fit well. The MSE gives us more of the same. □

Mooney M20J MSE
Base price: \$128,890
Current market value: \$183,280

Specifications

Powerplant	Textron Lycoming IO-360-A3B6D, 200 hp
Recommended TBO	2,000 hr
Propeller	McCauley, two-blade, constant-speed, 74-in diameter
Length	24 ft 8 in
Height	8 ft 4 in
Wingspan	36 ft 1 in
Wing area	175 sq ft
Wing loading	15.7 lb/sq ft
Power loading	13.7 lb/hp
Seats	4
Cabin length	9 ft 6 in
Cabin width	3 ft 7.5 in
Cabin height	3 ft 8.5 in
Empty weight	1,726 lb
Gross weight	2,900 lb
Useful load	1,174 lb
Payload w/full fuel	790 lb
Fuel capacity, std	66.5 gal (64 gal usable) (384 lb usable)
Oil capacity	8 qt
Baggage capacity	120 lb, 33 cu ft

Performance

Takeoff distance, ground roll	1,600 ft
Takeoff distance over 50-ft obstacle	2,450 ft
Max demonstrated crosswind component	11 kt
Rate of climb, sea level	780 fpm

Max level speed, 8,000 ft	168 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption, ea engine)	
@ 75% power, best economy	166 kt/4.9 hr
8,000 ft	(64.8 pph/10.8 gph)
@ 65% power, best economy	158 kt/5.6 hr
10,000 ft	(56.4 pph/9.4 gph)
@ 55% power, best economy	145 kt/6.5 hr
10,000 ft	(49.8 pph/8.3 gph)
Max operating altitude	18,600 ft
Landing distance over 50-ft obstacle	2,100 ft
Landing distance, ground roll	640 ft

Limiting and Recommended Airspeeds

V _X (best angle of climb)	66 KIAS
V _Y (best rate of climb)	86 KIAS
V _A (design maneuvering)	118 KIAS
V _{FE} (max flap extended)	112 KIAS
V _{LE} (max gear extended)	132 KIAS
V _{LO} (max gear operating)	
Extend	132 KIAS
Retract	107 KIAS
V _{NO} (max structural cruising)	174 KIAS
V _{NE} (never exceed)	196 KIAS
V _{S1} (stall, clean)	63 KIAS
V _{SO} (stall, in landing configuration)	56 KIAS

For more information, contact Mooney Aircraft Corporation, Post Office Box 72, Kerrville, Texas 78029; 512/896-8181.

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. □