THE INSIDE STORY

Mooney revamps the MSE from the inside out

BY MARC E. COOK

AS pilots, we tend to place great emphasis on an airplane's performance and appearance, particularly the view others have from across the ramp. Call them the key image items. Although a fast steed is certainly worth the cost on long cross-country trips, the simple fact is that we spend less time casting our eyes over the graceful lines of the fuselage or the purposeful menace of a well-designed cowling than looking at the insides. Even so, for the longest time, airframe manufacturers believed that the interior was one of the best places to cut costs and save weight. Not many among us can say that their flight training took place without some number of hours staring at chintzy (probably cracked) Royalite, perched upon

PHOTOGRAPHY BY MIKE FIZER AND MICHAEL P. COLLINS

seats more unyielding than a wooden park bench, wondering when burnt orange would come back in style.

Given today's new-airplane volume, manufacturers are less inclined to make substantive airframe changes and instead are turning to the insides. Among Mooney's lineup, you need only peer into the new Ovation or TLS to see how far we've come from flexing plastic, dozens of exposed screw heads, and styling often a decade or two behind the times. Mooney's rethinking of the interior was masterful, giving the Ovation (upon which the new treatment debuted) a handsome, purposeful, and up-to-date look.

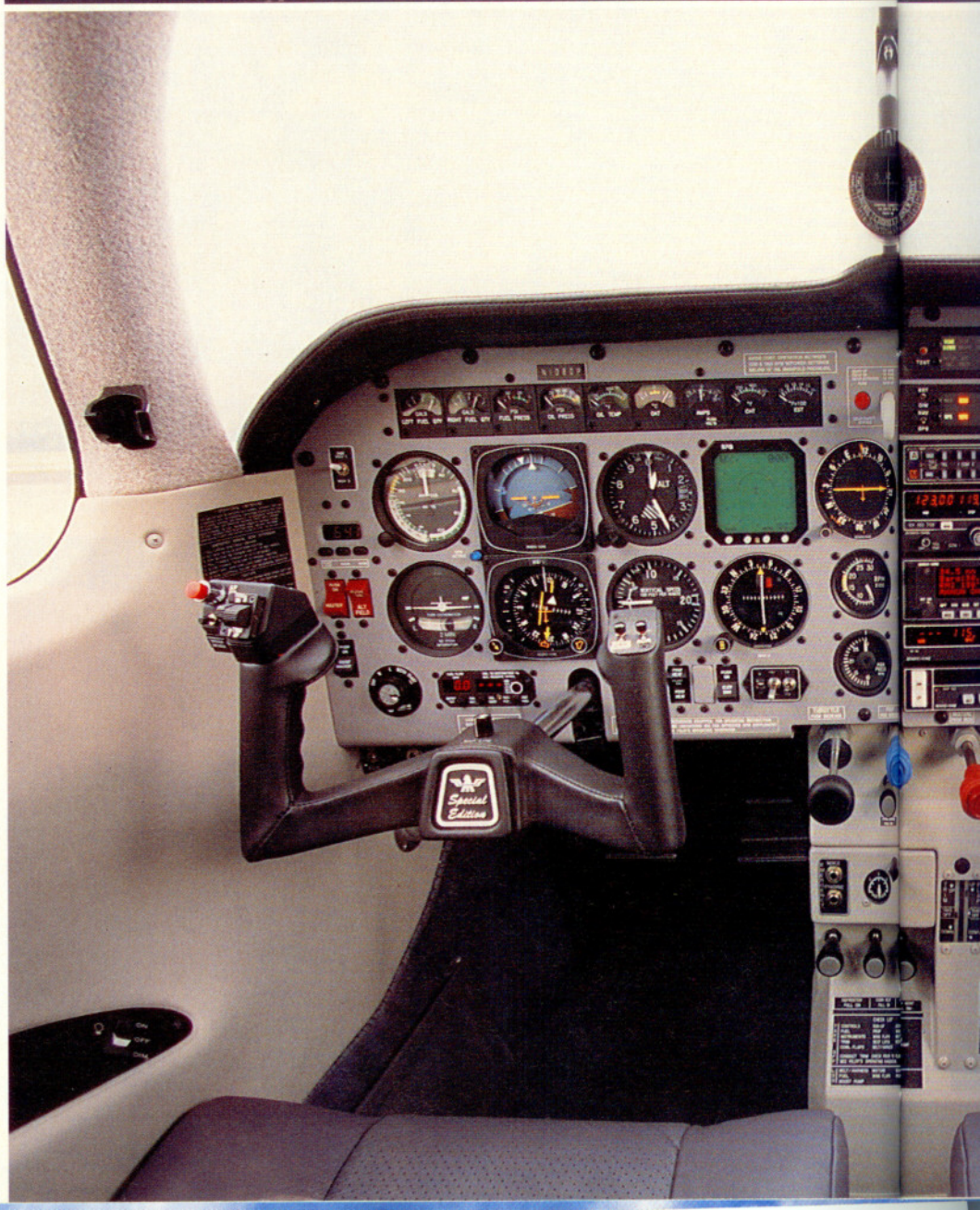
Top-down economics

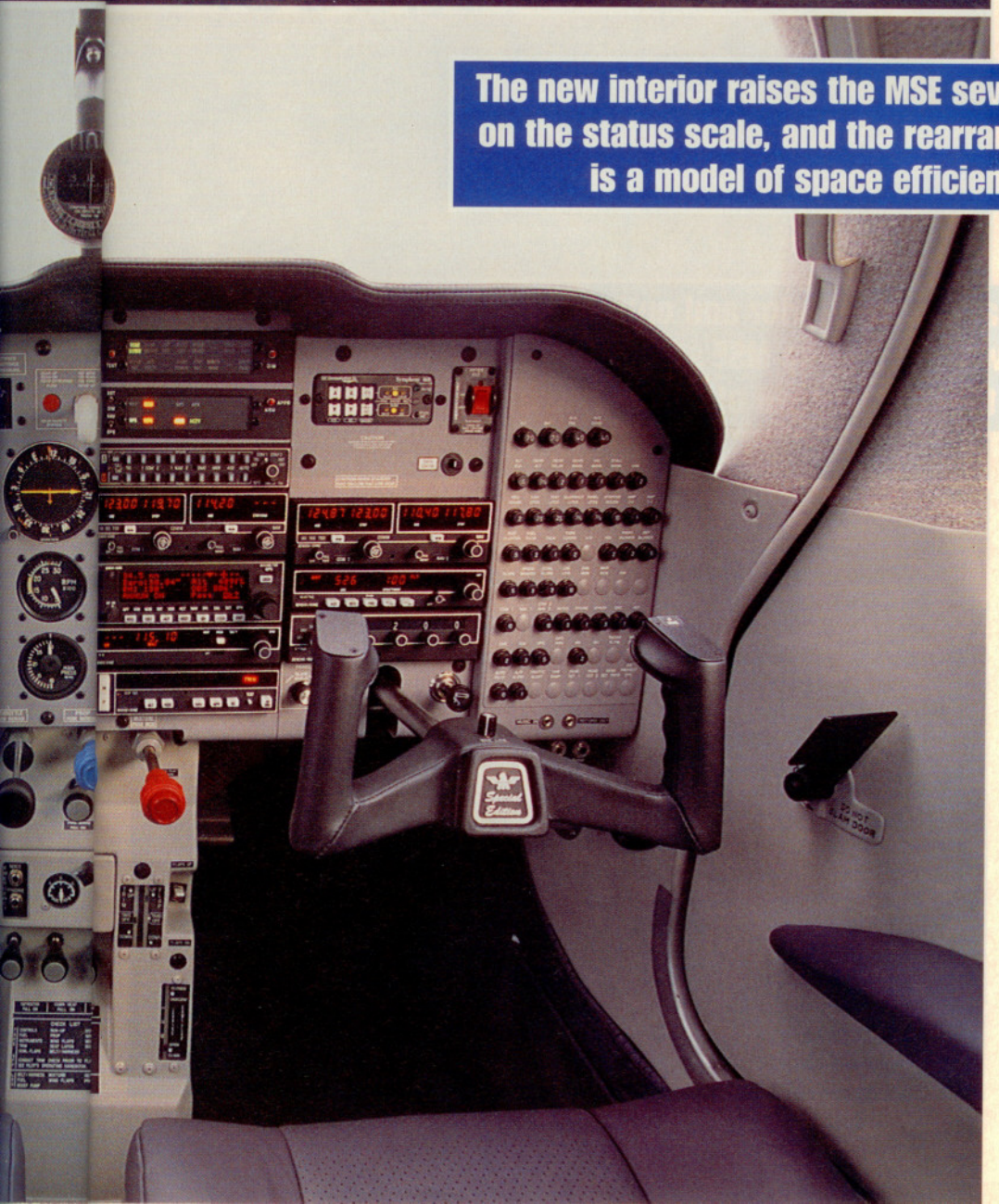
Now the new interior treatment has come to Mooney's least-expensive and longest-running current production model, the MSE. Gracefully molded composite panels support tasteful fabrics and form around the interior in such a way as to add visual space and generally upgrade the impression from Toyota-acceptable to Lexus-luxurious. If you remember earlier Mooney interiors, you'll be amazed at the tastefulness and quality of the new design.

Moreover, the added visual spaciousness helps greatly in a cabin that's arguably not the largest around. Although Mooney claims a cabin width of 43.5 inches for the MSE, this measurement is taken at the elbow-level cutouts; and even if the numbers are similar to other single-engine retracts, the Mooney interior has never been one to inspire thoughts of the great outdoors. Still, it's a comfortable cabin for two or three adults and plenty spacious for those tall and thin of build. And, of course, the new interior treatment helps to stave off feelings of claustrophobia.

Mooney has left in place the original-style MSE panel, which comes with a glareshield significantly lower in the windshield than those fitted to the Ovation and TLS. In all, the new interior raises the MSE several points on the status scale and impresses nonpilots who must sometimes wonder if airplane interiors are *intended* to resemble that of a Czech taxicab.

For $5,340, Mooney will outfit the four-place interior with leather seats and leather-trimmed control wheels. The perforated inserts help to keep the seats cool even in sweaty weather and provide a most delightful aroma upon the first opening of the cabin door. Combining the new materials with revised mounting schemes has also





The new interior raises the MSE several points on the status scale, and the rearranged panel is a model of space efficiency.

made this one of the quietest Mooneys in memory. For paying attention to the details that many pilots may miss but passengers certainly do not, Mooney deserves great credit.

Panel perks

While working on the new interior, Mooney took the opportunity to slightly rearrange the instrument panel—no small feat, considering that it was a model of space efficiency to begin with. A pair of 2.25-inch gauges for manifold pressure and engine speed have been moved from the far right of the panel to a location just above the engine controls. A Shadin digital fuel flow gauge—there's no mechanical version aboard the standard MSE—is repositioned to the space below the turn coordinator. A row of gauges just below the glareshield report on vital signs ranging from fuel level to exhaust-gas temperature.

Mooney was able to squeeze the power gauges onto the main instrument panel because the lighting switches have been moved to a site above the windshield. Overhead you'll find controls for the four lights mounted in the leading edge of the wing—two taxi lights and two for landing—plus those for an optional belly-mounted flashing beacon, wingtip strobes, wingtip recognition lights, and nav lights. Whether the move to an overhead panel is seen as a functional improvement depends upon personal preference; at least the alteration opens up space on the main panel.

While the MSE is the most direct descendant of the original Mooney M20 airplanes, it has not been a stagnant design. You may already be familiar with the history: The 200-hp engine first came to the Mooney airframe with the M20E in 1964; then a stretched-cabin model followed, in the form of the M20F. By 1976, the 201, a heavily revised and cleaned-up version of the F, was rolling off the lines, destined to become a runaway success for Mooney. Now, of course, the TLS and Ovation carry on with 20-inch-longer versions of this airframe (stretched for the short-lived Porsche-powered PFM) and larger powerplants; through it all, the rest of the assembly—from single-piece wing, steel-tube framework encircling the cabin, and electrically actuated rubber-puck-sprung landing gear—has remained much the same. Considering the success of the 201/MSE, Mooney

has been wise to leave well enough alone: The sturdy Lycoming IO-360 remains the powerplant choice, and the systems are reasonably simple, durable, and well-understood.

MSE: many subtle enhancements

Not fixing what's not broken doesn't exclude the possibility of further maturing the airplane. If you haven't been in a 200-horsepower Mooney M20 since the 201 days, you'll be amazed at the profusion of subtle changes and system improvements. Electric cowl flaps have been standard for some time, allowing for stepless adjustability from fully closed to wide open; this system is much easier to work with than the previous open/trail/closed setup. In a turnabout move, the MSE's long, thin flaps get the preselect treatment in lieu of the previous anywhere-you-want scheme. Now they have three positions—up, takeoff/approach (15 degrees), and landing (33 degrees). Longtime Mooney pilots will probably dislike the change; thankfully, the flaps' limited effectiveness makes this preselect option less cumbersome than on other airplanes so fitted.

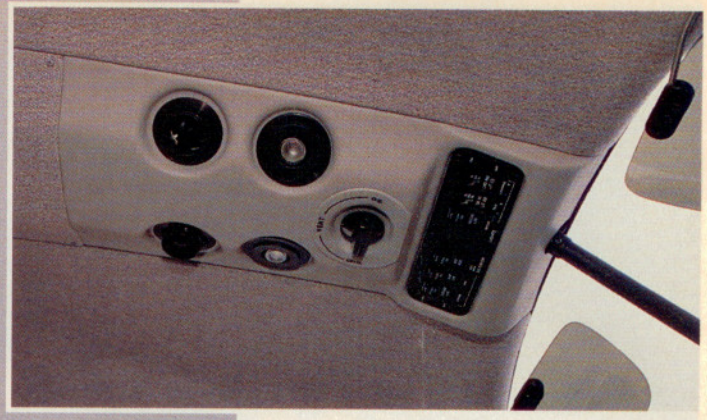
An electrically powered backup vacuum system is standard on the MSE, although the suction gauge itself resides low on the center console, well out of the normal instrument scan. At least the large annunciator panel at the top of the primary radio stack will help you notice system faults quickly. A second annunciator panel comes with any IFR-approved GPS that you specify; the demonstrator that we flew had a Bendix/King KLN 89B.

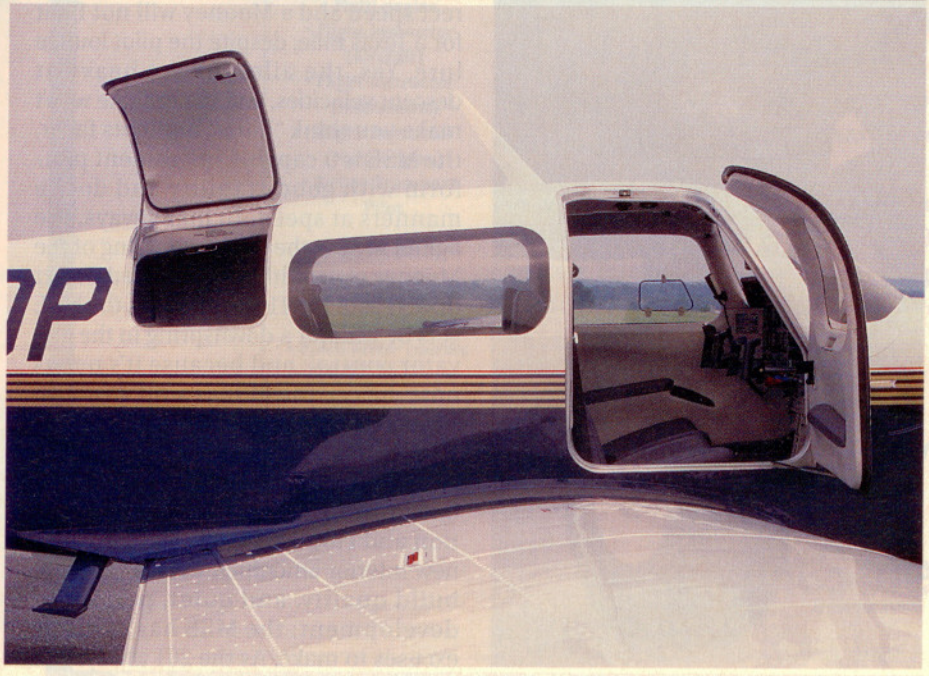
Electrically driven speed brakes are a factory option on the MSE. Deployed from a push button on the left horn of the pilot's yoke, the brakes allow a swift descent at cruise power without any gain in airspeed. They are not, however, as critical an item as on the faster (or turbocharged) models. The MSE doesn't cruise so close to V_{MO} (beginning of the yellow arc) that descents are impossible without gaining an unacceptable amount of airspeed or yanking the power back abruptly.

Radio daze

Mooney equipped N1080P with an extensive avionics suite, including Bendix/King dual nav/coms, IFR GPS, ADF, DME, transponder, and a Terra blind encoder. A KCS 55A horizontal situation indicator (HSI) works with the KAP 150 two-axis autopilot and integrates with the GPS for George-flown approaches

The snazzy new interior and optional avionics add weight, but the MSE still has a decent full-fuel payload of 548 pounds.





and smooth, satellite-steered navigation. A BFGoodrich WX900 Stormscope, upgraded Shadin fuel-flow computer (which interfaces with the GPS to provide miles per gallon and fuel at destination, among other things), DRE Symphony 468 intercom, and Bose headset round out the package. This forms an amazingly complete assembly of useful boxes, with even the most gadget-loving pilots asking for little additional hardware. About all that's missing is a multiprobe engine monitor. Even more amazing is that all these goodies fit into the MSE panel without a hint of crowding or compromise. Other manufacturers could take lessons from the creative types at Mooney about panel packaging.

While the thick avionics list marks the gotta-haves, these options really jack up the MSE's bottom line. All told, the avionics bill, added to the MSE's base price of $184,375, accounts for a big chunk of this airplane's $264,735 out-the-door price. Incidentally, since we last looked at the MSE (a 1992 model), the base price has climbed nearly $60,000, in part because of a greater array of standard equipment.

A well-endowed avionics rack and snazzy new interior bits have added to the MSE in another way: weight. At 1,968 pounds empty, this MSE is about 200 pounds heavier than earlier 201/MSEs. At least the airplane, thanks to a maximum-gross weight increase to 2,900 pounds (given to the MSE in 1992), still has decent payload. With the twin wing tanks full (for a total of 64 gallons usable), there's still enough room in the weight-and-balance envelope for three 170-pound adults and some baggage. Moreover, the 548 pounds of full-fuel payload can be distributed about the cabin without great regard for balance; you could load a pair of 200-pounders in the back seat with a lightweight pilot up front and still be within the center-of-gravity limits, if only barely. Finally, given the airplane's typical

Is this the view pilots of most other airplanes get? Mooney pilots think so.

cruise fuel consumption of 10 gph, you can off-load enough fuel to carry four adults and still have 42 gallons aboard, or about 3.2 hours with an hour's reserve.

Sociable climber

A 200-hp engine lugging around 2,900 pounds of airplane sounds like the recipe for a lackluster climber, but the MSE comports itself reasonably well. Book values specify a sea-level climb of about 800 fpm at maximum gross weight, tapering to 350 fpm by 8,000 feet; absolute ceiling is around 14,500 feet at this weight. At a more typical loading—two adults and their baggage—the airplane will ascend at about 925 fpm from sea level and 500 fpm at 8,000 feet.

Where the MSE really shines is in the cruise department. With a listed max-cruise speed of 166 knots true at 8,000 feet (on 75 percent power), the MSE does more with 200 hp than anything in the class. Unfortunately, getting this power setting at this altitude calls for wringing the Lycoming IO-360 at maximum speed, 2,700 rpm, where it is noisy and rife with vibration. Most 201/MSE pilots elect to cruise at 2,500 rpm, which will give 65 percent power at 8,000 feet for 156 KTAS on about 10 gph. If you don't mind the din at 2,600 rpm, the engine will maintain 65 percent power to 10,000 feet, where the MSE will true 160 knots.

Recanting the rumors

Mooneys, in addition to carrying your passengers and you along at a good clip, haul an unusual load of hangar mythology. They're hard to land, trucklike on the

controls, and ready to start a landing-roll porpoise with little baiting. It's true that Mooneys are different—their pushrod controls, small ailerons, and generally clean aerodynamic profile make them something of a larger step from lower-rung airplanes than for, say, a Piper Arrow or Cessna Skylane. Spend some time with the marque, however, and what seems like insurmountable quirks turns into merely elements of character.

Fly the landing approach at the correct speed and a Mooney will not float for a Texas mile, despite the pilot lounge lore. Yes, the ailerons are heavy at descent velocities, and the roll rate won't make you think "Pitts," but in its favor, the MSE is a capable instrument platform with good stability and docile manners at speed. In many ways, the lighter MSE is the nicest-handling of the Mooney clan. Without the added power or weight of the TLS or Ovation, the MSE gets by without a downspring in the elevator control; and because it's not as nose-heavy, the MSE is a bit easier to squeak on than the upmarket brethren.

Until this year, the MSE had begun to look like the poor sister in the Mooney lineup, overshadowed by the slick Ovation and cloud-topping TLS. But with new interior amenities, overall excellent build quality, and quiet, persistent development, the MSE has no more excuses to make. As the 201 always has

been, the MSE is fast, efficient, and the ideal personal transport for those not needing flight-level performance (or the cost associated with the hardware that goes with it). Now the airplane has interior appointments commensurate with more expensive models. □

Mooney MSE
Base price: $184,875
Price as tested: $264,735

Specifications

Powerplant	Lycoming IO-360-A3B6D, 200 hp @ 2,700 rpm
Recommended TBO	2,000 hr
Propeller	McCauley two-blade, constant-speed, 74-inch diameter
Length	24 ft 8 in
Height	8 ft 4 in
Wingspan	36 ft 1 in
Wing area	175 sq ft
Wing loading	16.6 lb/sq ft
Power loading	14.5 lb/hp
Seats	4
Cabin length	9 ft 6 in
Cabin width	43.5 in
Cabin height	44.5 in
Empty weight, as tested	1,968 lb
Maximum gross weight	2,900 lb
Useful load, as tested	932 lb
Payload w/full fuel, as tested	548 lb
Fuel capacity, std	66.5 gal (64 gal usable) 399 lb (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	168 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption)	
@ 75% power, best economy	166 kt/5.2 hr
8,000 ft	(64.8 pph/10.8 gph)
@ 65% power, best economy	160 kt/5.9 hr
10,000 ft	(57.6 pph/9.6 gph)
@ 55% power, best economy	147 kt/7.0 hr
14,000 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, Louis Schreiner Field, Kerrville, Texas 78028; telephone 800/456-3033; fax 210/896-8180.

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.