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## Mooney M20 (Pre-201)

Known for strength, economy, speed and a sports-car fit, the basic Mooney airframe endures.

The thoughts and dreams of airplane owners on a budget, who've had enough bobbling along at 110 knots, may turn to the pre-201 Mooney M20 series. These distinctive airplanes don't cost a fortune and they fly fast (140 knots or so), sipping only a gallon or two more per hour than a 172. If you find an older Mooney that has been well maintained, has a low-time engine (watch out for those Lycoming 360 ADs) and the most popular mods, what's not to love?

Age is one concern. The last pre-J M20 dates to 1978 and the biggest numbers were produced in the 1960s, before one of Mooney's serial bankruptcies, which itself is a worry for owners. The earliest had wooden wings. Some of the rest had corrosion problems and fuel tanks with sealant trouble. A bladder mod has an AD. Resale value is another issue. The 3700-plus 1977 J and later models, from the 201 onward, keep a lid on the prices of earlier M20s, no matter what their mods and panel improvements. For the rare owner who doesn't care — the one with a budget who wants an airplane to use and love forever — a pre-J Mooney can be a beautiful thing.



**Although the J-model put Mooneys on the map, the older M20s, photo above, have all the basics that make Mooneys fast: simple folding gear, low drag and a light airframe.**

### MODEL HISTORY

The M20 series evolved in 1955 from Al Mooney's "Wee Scotsman," the Mooney Mite M-18, a single-seat, low-wing, speedy little airplane with manually retractable gear cushioned by rubber "donuts." Mooney designed it in the 1940s for simplicity, speed and efficiency. In addition to the donut cushions and the "Johnson bar" for operating the gear, which would remain an M20 model feature until 1969, the Mite introduced the famous "backwards" vertical stabilizer that supposedly improved spin recovery and remains the Mooney's trademark.

The pre-201 Mooneys, launched as a four-seat version of the Mite, are those that came before the Roy LoPresti aerodynamic redesign with the J model in 1977, which boosted cruise speeds about 10 to 15 knots. The first M20, the four-seat Mark 20, built from 1955 through 1958, had a wooden wing and tail. Powered by a 150-HP Lycoming O-320 with a constant speed prop, it gave way in 1958 to the metal-tailed M20A, powered by a 180-HP Lycoming O-360 A1A. It still had the wooden wing. These two models, of which nearly 700 were built through 1960,

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had the worst in-flight break-up record of any small airplane and ADs that required inspections of the wing and tail for rot. You can buy one for less than \$25,000, though, and cruise at better than 140 knots.

The B-model Mark 21, made only in 1961, got rid of the wood and boosted the standard fuel capacity from 35 to 52 gallons. Its metal wing design, with few changes, is still in production. The B quickly gave way to the most ubiquitous of all M20 models, the C, in 1962. It had an engine change to the O-360-A1D, more rudder travel, a hand-pumped hydraulic flap actuator instead of a mechanical linkage, increased flap deflection and a 125-pound increase in useful load. The C remained in production until 1977. More than a third of the 6200 pre-J M20s were C models.

Mooney's success inspired it to try an economy version: the Model D Master with fixed gear, which cost the design 20 knots or so. Only 60 were made from 1964 through 1966 and it's rare to find one that hasn't been converted to retractable gear. The same year saw Mooney try a pricier package, too. The Model E Super 21 Chaparral introduced the 200-HP Lycoming IO-360-A1A, making it the first of the Mooneys without a carburetor heat control.

In 1965, Mooney introduced its Brittain-made wing-leveler as a standard feature on all models, calling it "Positive Control" because it was always on unless the pilot pressed a release button on the yolk. Either loved, hated or put up with, it probably prevented some graveyard spirals and remained a feature until the 201 came along.

Known for its tight fit as well as speed, the M20 fuselage got a foot-long stretch with the Model F Executive in 1966. Three were made as that year ended and 536 in 1967, more in one year than any model before or since. Like the C and E, the F remained in production until the paradigm shift of LoPresti's 201. In 1969, they all got one-piece windshields, a popular mod now for earlier models.

The M20G in 1968 matched the C model's 180-HP engine with the longer fuselage and lasted two production years. A more notable and costly loser was the M22 pressurized Mustang. Introduced in 1968, it looked like a tank and helped tank the company, which went bankrupt in 1969. Butler Aviation bought Mooney and stopped production in 1972. Republic Steel bought in and started making Mooneys again in 1974. Republic spun off the design for a Mooney 301, which Socata built as the TMB700, and merged the company with a French firm in 1984.

There was another bankruptcy in 2001 and another in 2004. One of the players, the Mooney Aerospace Group Ltd., has been rebuilding the Mooney Airplane Company since then under a court-approved reorganization plan. It introduced the M20TN Acclaim at Sun 'N Fun this spring. Powered by a 280-HP Teledyne Continental TSIO-550G with twin turbochargers and dual intercoolers, it goes fast and costs a lot. If you're looking into pre-J M20s, try not to think about it too much.

### MARKET SCAN

It's been a buyers market for a while, as The Mooney Owners of America magazine, *Mooney Pilot*, described it last fall. The Spring 2006 *Bluebook* average price range for pre-J M20s went from \$20,000 for a 1955-1957 M20, \$39,000 for a 1961 M20B, \$45,000 for a 1965 Model C into the \$50,000-and-up range from 1969 to 1971 and in the \$60,000 range after 1974. The *Bluebook* put a 1978 Model C at \$67,000 and a 1977 Model F at \$72,000. Nothing quite compares to a Mooney for speed and efficiency but other step-up airplanes are generally priced higher. A 1967 Cardinal RG is *Bluebooked* at \$67,000. A 1978 Piper Arrow comes in at \$76,000. Forget a 1977 182Q, which the *Bluebook* puts at \$99,000. Accept

lesser airplanes and the prices get closer. A 1978 Sierra is listed at \$61,000 and so is a 1978 fixed-gear Cardinal. A 1980 172 RG Cutlass is listed at \$65,000.

## PERFORMANCE

Mooneys are all about getting speed without spending a lot of money. Most older models have a 180-HP engine; some the 200-HP fuel-injected Lycoming. A 172 owner who steps up to a mid-1960s Model C is going to be thrilled watching the world slip under the leading edge at a noticeably higher pace while flight planning for 10 or so gallons per hour.

The pre-1977 Model-C Ranger, for example, cruises at 150 knots, the *Bluebook* says somewhat optimistically. It has a sea level rate of climb of 860 FPM. Takeoff over a 50-foot obstacle is listed as about 1400 feet and landing over one requires 1550 feet.

Mooneys perform well on 180 HP by having low drag, which requires sacrificing space. It feels like you wear a Mooney and, to some, that's part of its pleasure. There's a sports-car slouch required to slip behind the controls and the pilot sits low with his legs stretched under the panel — a possible problem for short pilots. Those used to sitting up high and having a good view out and below will feel a bit claustrophobic. Because the cowling may not be in the pilot's field of view, different sight cues are needed during landings.

These airplanes are famous for being hard to land. That may have more to do with poor basic training and bad habits that slower singles let pilots get away with. The Mooney, with its rubber-donut gear, is easy to grease on if the approach is stable, speed on short final no more than 75 knots, the roundout is not made too high and the nose is held off. At higher speeds, its slippery design will float in ground effect. That's where pilots get in trouble, over-controlling or dropping it on, inducing a bounce, then letting the nose fall through and hit the runway. That's how pilot-induced oscillations start and woe to the transitioning Mooney flier who dumps the nose on the runway.

In crosswinds, there is also a legend that Mooneys are tricky. Again, good speed control, cross-control technique and judgment make up for any quirks, especially in C and later models, which have more rudder travel than the early M20s.

Short-field operations can be a challenge. Pilots used to Cessna flaps, for example, will find the Mooney's almost absent and, as noted, the airplane will float if approach speeds are too high. Speed brakes are a popular mod in later models. The problem with them is a tendency to sink in the pattern and have to drag it in on final. Just carry more power than you used to once those brakes are deflected.

Mooniacs, as the devoted call themselves, love the older models with the Johnson bar for operating the manual gear. The gear has low operational speeds, however, so it can't serve as a speed brake for en route descents. It also takes a lot of muscle to retract if the pilot lets the speed build too high on departure.

There's not a lot of room in a Mooney, but load-carrying ability is not bad. Squash four people into the airplane, fill the tanks and you're in trouble in most four-seat airplanes. The useful load of a Mark 21 Model C is 1050 pounds not counting any mods and new equipment, which are common on these older models. That leaves, at most, 738 pounds for people and baggage. Pilots have commented that these airplanes are perfect cross-country machines for one or two people and their bags.

Roll response is often called "truck-like." The Mooney is controlled with pushrods, not cables, and some pilots like their solid feel. Its heavy aileron feel makes it a

good IFR airplane and the Positive Control feature, on those models that have not had autopilot upgrades, is simple and helpful when there's work to do in the cockpit.

Good rudder control to prevent yaw is crucial when practicing stalls in a Mooney. The airflow over that clean wing breaks abruptly and one wing often will drop. Lower the nose, pick it up with aggressive rudder and all will be well. Spins are not for the faint-hearted (or legal-minded). You'll need at least 1000 feet to recover.

### **MAINTENANCE**

Pre-J shoppers should study up on a number of issues involving these models and check logbooks carefully. For the pre-buy, use a mechanic who really knows Mooneys. Problem number one is the old wood wing and tail. Don't go there. Problem number two is corrosion in the fuselage tubing. The Mooney is known as a very well built and very strong airplane. It has a very low break-up rate and a virtual "roll cage" around the cabin. Rust doesn't care. The older models seem less prone to it, in part because there was less sound insulation to trap moisture. Watch out especially for models built in the late 1960s and early 1970s, before Republic bought the company. Cost-cutting as bankruptcy loomed included less rust-proofing. Be familiar with Mooney Service Bulletin M20-208B from August 1989, which calls for corrosion inspections.

Another common problem is deteriorating fuel-tank sealant that contaminates fuel and causes engine failure. A 1985 AD covers the tanks. Other ADs include one in 2004 for airplanes with the popular O & N bladder fuel cell mod, the result of reports that rainwater was entering the fuel bladders.

Over the years, there also have been ADs involving cracked aileron control links, the original Dukes fuel pump, the electric gear, the control wheel shaft, ingestion of air filter screens and gaskets and corrosion in the control rigging and landing gear. There have been very few recent ADs, however. Good logbooks or a good mechanic (and perhaps a big check for catch-up work) should be vital to any buyer.

Watch out for nose gear damage as a result of line personnel exceeding the turn limits while towing the airplane, which requires a wide radius. There were 57 Service Difficulty Reports filed by mechanics (who famously complain about all the screws they need to remove to get inside a Mooney) for pre-J M20 models from January 2000 to May 2006.

That's way down from the last time we checked more than a decade ago. (J and later models had about 135.) The most, 11, involved various landing gear problems. Nine had to do with the engine, either internal components (4), the oil system (3) or accessory gearboxes (3). Two engine problems could not be specified.

Four reports had to do with the fuel distribution or storage systems and four involved the prop, spinner or hub. (We recently saw a quart of water pour out of the spinner when the new owner of an unhangared M20 pulled his prop through. Not a pretty sight.) The rest of the SDRs were typical with no discernible



**Publicity shot of a new M20E from Mooney's files.**

patterns. Parts availability is never mentioned as a problem for older Mooneys. With so many airplanes out there, it seems unlikely it will become a problem any time soon.

### **MODS, OWNER GROUP**

Lots of help for Mooney buyers and owners is available on line. The Mooney Owners of America (MOA) claims to be member owned and managed, publishes *Mooney Pilot* magazine and can be visited at [www.mooneyowners.com/](http://www.mooneyowners.com/). There's also the Mooney Aircraft Pilots Association, which is partly sponsored by Mooney and Falcon Insurance Company. Visit it at [www.mooneypilots.com/](http://www.mooneypilots.com/).

The mods for older Mooneys to make them look and behave just like J and later models are almost countless. Speed mods, one-piece windshields, new wingtips, an alternator to replace the old generator on early models, fuel bladders, larger fuel tanks, speed brakes, new panels to replace the awful old ones, soundproofing and new engines are just some of the improvements available.

Lake Aero ([www.lakeaero.biz/](http://www.lakeaero.biz/), 509-682-4109) offers a 201 windshield and 201-style wingtips. O&N Aircraft Modifications ([www.onaircraft.com/](http://www.onaircraft.com/), 570-945-3769) sells six interconnected fuel bladders to replace the tanks. LoPresti Speed Merchants in Vero Beach is in the game, of course, with a new cowling, gap seals and other fixes ([www.speedmods.com/](http://www.speedmods.com/), 877-565-1731).

Coy Jacob's Mod Squad in Venice, Florida has a dizzying pile of information about mods on its site ([www.mooneymart.com/](http://www.mooneymart.com/), 841-484-0801). Precise Flight offers speed brakes; see [www.preciseflight.com/](http://www.preciseflight.com/), 800-547-2558.

### **OWNER FEEDBACK**

I purchased N128PB, a 1967 M20E, in April 1996 and couldn't have made a better purchase. I believe this plane offers a lot of bang for the buck. I have made a few modifications, which include fabricating a complete new panel containing a Garmin GX60, GEM analyzer, S-Tec 50 and a WX-900 Stormscope. The previous owner installed a cowl closure mod.

I had Triad Aviation in Burlington, North Carolina, rebuild the engine about 750 hours ago and couldn't be happier. I had chrome cylinders installed and burn one quart per four hours. The fuel tanks have been resealed by Wetwingologists after many attempts at patching.

I can run lean of peak and burn about 8 GPH and 10 GPH running 50 degrees rich of peak. I usually see 140-143 knots true running rich of peak. I usually fly between 6000 and 10,000 feet and see about 700 to 800 FPM climb. I almost never have more than one passenger aboard and believe this is a great two-people-with-luggage plane.

Tommy Craig  
Conover, North Carolina

In 1996, I bought a 1975 M20E with 2300 TTIS — my first ever airplane after building most of my hours on Grumman Cheetahs and Tigers. My target was a fast, economical single engine IFR retractable.

I consistently achieved 145 knots on 9.5 GPH and my only gripe would be the limited range, which in a big country like Australia can be important. With all Mooneys, the approach speed is important and I quickly learnt that good landings came from getting the speed right. Until the M20E, I was apprehensive about crosswind landings in any aircraft but I found it handled fine in a crosswind and could be landed well above its demonstrated limit.

The M20E is a strong reliable airframe with sturdy landing gear and is fast and economical. For those considering an M20E (or any aircraft for that matter), a thorough independent pre-purchase inspection is mandatory and walk away if the SBs and ADs have not been done or are suspect.

Gary McKernan  
Adelaide, South Australia

I acquired my 1967 Mooney M20F with 1950 hours on it in February 2003 and have put about 600 hours on it. Some of the interior appointments are nicer than in the early years of the 201. Most obvious is that each of the rear seats recline separately where, in many 201 Mooneys, the rear seat is a bench seat.

The more significant modifications include 201 windshield, gap seals, wing root flaring, reversed brake calipers, alternator and oil filter. I added Precise Flight standby vacuum as my first mod and my last was a RayJay turbocharger. There are few "original" pre-201 Mooneys and I would avoid those that are stock and unmodified, as it would make one think the previous owner(s) did not "invest" in the airplane.

To be honest, my two favorite singles are the Bonanza and the Saratoga/Lance. The reality is both of these types run from \$70,000 to \$100,000 and more for good examples than what my Mooney cost. In my buying search, I looked at other 200 HP planes such as the Cessna Cardinal RG and the Piper Arrow before selecting a Mooney. The Cardinal RG, although a quick, roomy plane for 200 HP, is a bit slower than the Mooney and I feel has a bouncer ride and lower build quality. The Piper Arrow is slow. The Beechcraft Sierra, although big on the inside, is underpowered and slower than the Piper.

I have the electric landing gear option and was not interested in the manual system. The electric gear cycles very fast, only a few seconds up or down. If you're a medium to tall person the Mooney is comfortable with lots of legroom. If you're short or wide, you will need to think about whether or not the airplane is what you really want.

John Murray  
Albany, New York

I owned one of these gems, a 1964 M20C, for 16 years. It provided a good combination of speed, range and low operating costs. The small cabin coupled with the inability to store oversized luggage led me to sell the airplane once I started a family.

The Lycoming O-360 engine gave little trouble except when the old fuel pump went and once when the mag coil split. Other than that, it was bulletproof. The plane had a big aircraft feel in smooth air but in turbulence it would transfer the bumps through the yoke. Noise levels are high and earplugs became standard equipment for passengers. Ventilation is good with gasper vents on top and full venting on the bottom. The heater really means business and it's possible to get a nasty burn on your fingers from the blast deflectors. (Hint — use the fingernails.)

The standard instrument lighting is mediocre; I ended up modifying with post lights—big improvement. As far as IFR flying goes, it handles about average but low gear and flap extension speeds require you to get creative in the pattern. Although far from ideal in unpaved operations, I sometimes flew into grass and even select gravel fields (made a trip to Alaska). With the 180-HP engine, it is just an average climber, but once at altitude — I usually cruise between 8000

and 10,000 feet — I could get 140 knots on 8.6 gallons an hour. This would give me nearly six hours endurance before dry tanks.

Now for the bad part. The airplane is a bear to work on. I'm an A&P/IA so I do my own annuals. There are just over a thousand exterior screws in this aircraft. Fortunately, not all of them have to come out at annual time. There are several little mechanisms that need attention (like the empennage trim) and there is little extra room in the engine



**The original 1963 panel of 6562U with some later additions.**

compartment. Pay close attention to leaks: The avionics cover can leak and especially critical are the wing roots. This can cause corrosion on the frame tubes near the lower spar attach point. The fuel quantity sending units attach straight from the cabin, so if a gasket goes bad, it will stink up the whole cabin.

Having said that much, the airplane has good dispatch reliability, which is to say it doesn't break much. The nose gear can bend if towed by a tug so I installed the factory limit indicator and made signs reminding the tug driver to observe tow limits. The baggage door is on the top level so you don't have to pass excess baggage over the seat.

As far as a structural basis goes, it is built like a tank. If you ever see one being parted out in a salvage yard, you'll see what I mean. Properly maintained, the manual gear is remarkably easy to use and you'll wonder why it was abandoned. There are few aircraft that offer such value for the serious cross-country pilot.

Nathan Kimble  
Lawrenceville, Georgia

I've been a cartoonist for 40 years, a pilot for 25 and for the last 15, I've owned and flown N213EJ, a 1966 M20E I've logged over 1500 hours in it and enjoyed every one of them. I've also logged many hours drawing the Looney Tunes characters in animation, comic strip and comic book format, so I couldn't resist the enclosed. Hard to say which is the most fun.

I added spoilers to the wings and it made descents much easier to manage. It's a manual-gear Mooney, which I like, plus a few minor mods. It's an honest 150-knot, 10-gallon-an-hour cross country flyer or is just plain fun to dink around in locally. If there's a more efficient airplane around for the money, I haven't heard of it.

Lee Holley  
Aptos, California

I have owned N7883V, a 1965 M20C, since 1998. In 1993, it was upgraded with a full IFR package. The instruments were upgraded to a T panel versus the original random instrument panel. This airplane is an excellent instrument platform and I use it IFR frequently.

The engine has given me very few problems except for the replacement of one of the Bendix magnetos and a starter change. Annuals have run approximately \$1500-\$2000 but since I use this time to upgrade or perform preventive

maintenance (like installing new bladders recently), the annual can run me quite a bit more by choice.

The airplane was upgraded from a generator to Airnav alternator system and starts are now a breeze since I changed to a Skytech starter.

Externally there are no mods, with the stock fuselage and "guppy" mouth. I've often thought of upgrading to a cowl closure but have not justified the cost.

The airplane consistently gives 144 knots below 9000 feet at 75 percent using 9.8 GPH, which is not bad for a 180-HP airplane. The nosegear truss has been replaced twice due to FBOs failing to observe the turning limits during towing. I hope I have cured this with the new design truss that limits the travel before the truss tubes strike each other. I love the manual gear; it is a great design that should have been kept.

Lloyd Stearns  
via email

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