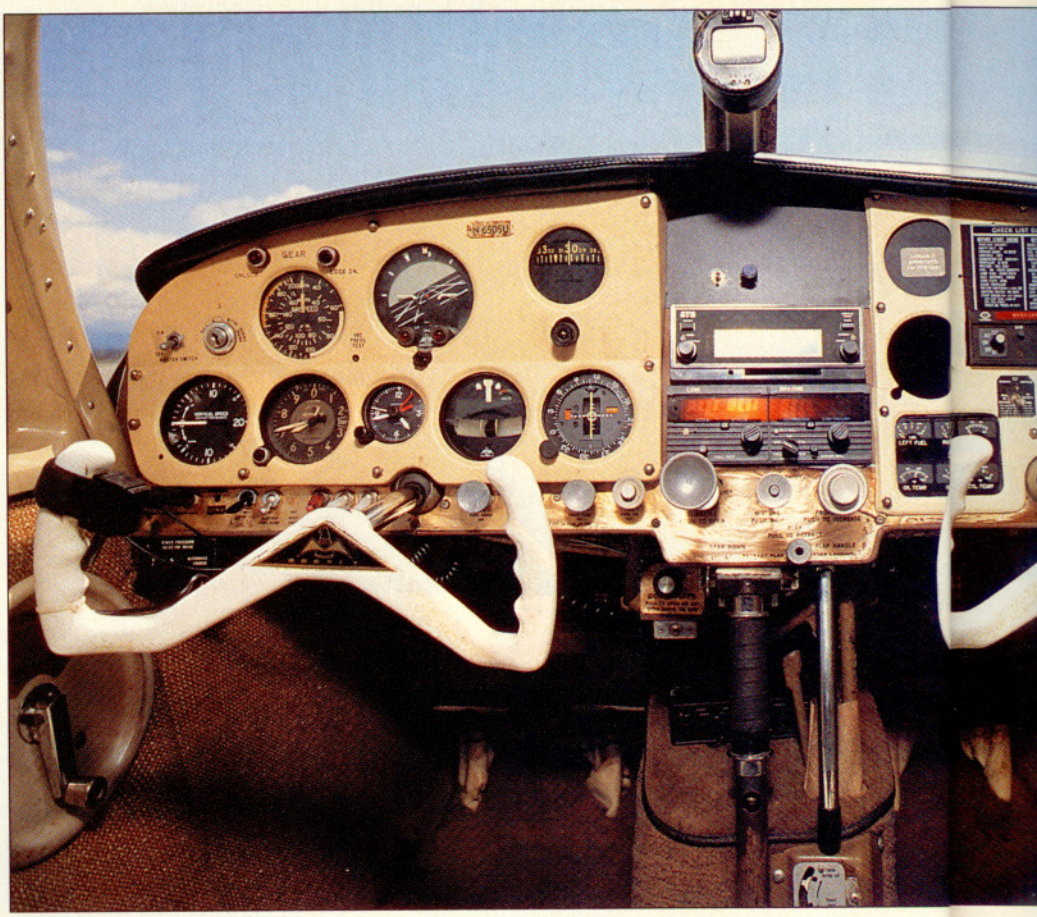
THE EARLY MOONEYS

Exploring the Type-M personality

BY MARC E. COOK

MOST pilots would say they like and enjoy their airplanes, while still others would profess to nothing less than a passionate love affair. Forget the cost of flying, the commitment to maintenance and pilot proficiency, or any individual shortcomings of the make and model. For these owners, the airplane experience is the ideal combination of a lust for flying and the stewardship of a finely honed

PHOTOGRAPHY BY MIKE FIZER



machine, a relationship guaranteed to swell the heart at its mere mention.

And then there are the Mooney owners.

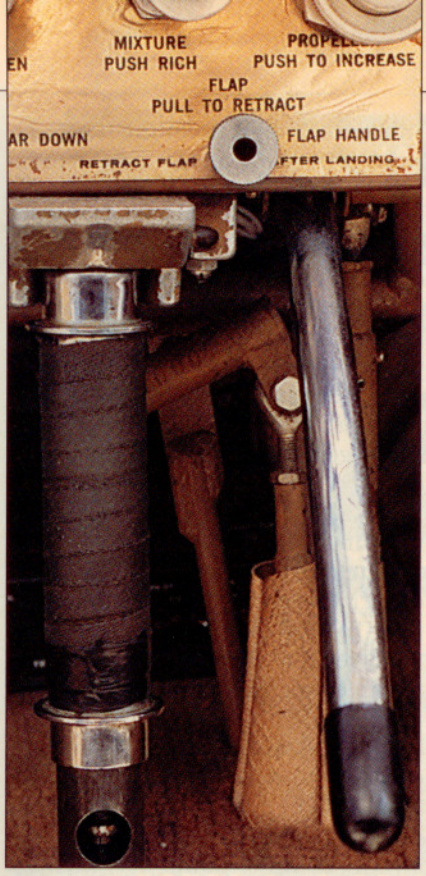
Few marques seem to call together such a diverse group of fanatics as Mooney. Arguments often fly between Mooney types and, well, everyone else: The Mooney owners call the M20s fast and fuel-efficient—what else could matter? Mooneys are fast and fuel-thrifty—the M20 line has distinguished itself as one that gets the most speed out of the least horsepower.

Mooney history is at once intriguing and frustrating. The company has been owned by several entities over the years, each one changing the model names and making changes both minor and major. A somewhat less tortured way to differentiate is to follow the numeric designations, like M20, M20A, and so on.

An outgrowth of the single-seat M18 Mite, the M20 series emerged in 1955 with a 150-horsepower Lycoming, a constant-speed propeller, and an unusual combination of airframe materials—a steel-tube frame surrounding the cockpit, which is in turn sheathed by thin aluminum skins. In the early, straight-M20 model, the wing and tail both were wooden. These versions are becoming more and more rare because the wooden components require extensive inspections and often expensive maintenance. As such, keeping a wood Mooney alive could be cost-prohibitive, especially in light of the few mechanics these days who know how

SAFETY RECORD

Most common accidents: There were 303 total accidents listed for the M20 series (which includes all airplanes from the M20A to the M20M TLS) in the AOPA Air Safety Foundation *General Aviation Accident Analysis Book for the years 1982–1988*. By far, the worst accident category for the M20 series is continued or initiated VFR into instrument conditions: 26 accidents resulted in 49 fatalities. Accidents related to the landing gear, including failure to extend it, involved 21 airplanes with two fatalities. There were 59 landing accidents, the vast majority of them overshoots, followed by a good number of loss of control in gusty/crosswind conditions. Of the 22 accidents precipitated by engine failures, the single largest subset was three connecting rod bolt failures. Nine accidents following power loss during takeoff, cruise, or approach were for undetermined reasons.



The old-style instrument panel is nonstandard and none too large: The flap handle (right, in above photo) is attached to the hydraulic pump; the gear handle is to the left.

to or are willing to work on a "composite" Mooney.

A metal tail came with the 1958 model, as did a 180-hp Lycoming, but the big change to the M20 came in 1961 with the B model, which sported a metal wing. It lasted one year and was followed in 1962 with the M20C, essentially the same airframe with a slightly different 180-hp Lycoming and its maximum gross weight boosted to 2,575 pounds from the B's 2,400-pound limit. This is the most common of the early Mooney models.

Looking for still more speed, Mooney bolted a fuel-injected 200-hp Lycoming onto the C model, and the M20E was born. Both the C- and E-model Mooneys are called the short bodies, to differentiate them from the M20F, brought out in 1967, which received a 10-inch cabin stretch. Where the F had the E's 200-hp Lycoming, Mooney also flirted with the smaller engine hung on the longer cabin and christened it the M20G when it debuted in 1968. The G didn't last two seasons, though; the bulk of the pre-201 Mooneys are divided among the short-body, small-engine M20C (with 1,680 registered), the short-body big-engine M20E (1,121 on the books), and the stretched, 200-hp M20F (930 in the Federal Aviation Administration's logs).

Simplicity and ruggedness have been Mooney hallmarks since the beginning, and the M20C shows these qualities as true virtues. Take the systems, for example. Early Mooneys have the much-talked-about manual gear system, one highly prized by the airplanes' owners. A hefty shaft that runs between the seats provides enough leverage for the average pilot to

PROs AND CONs

Pro:
- Good speed, excellent economy.
- Sturdy airframe, relatively low maintenance requirements.
- Nearly bulletproof, simple Lycoming powerplant.

Con:
- Noisy, cramped cabin.
- Limited crosswind capabilities, especially in short-fuselage models.
- Short gear, limited prop clearance limit M20s' rough-field abilities.
- Tightly cowled engine makes maintenance more difficult.

snick the wheels up in the flash of a wrist. With the gear down, the handle resides against the nosewheel well, perpendicular to the floor. To raise the gear, you release a safety catch, glance down to make sure nobody's hand is in the way, and, with one swift movement, shove the bar backwards and parallel to the floor.

Another example of the M20's simplicity is the shock-absorbing medium of the gear: rubber biscuits. No need to worry about a flat strut or loss of hydraulic fluid because the rubber doughnuts do all the work.

One more unusual feature of the early M20s is the hydraulic flap system. To drop the flaps, you position a small lever to the Down position and pump on a small chrome handle. As you pump, the flaps come down incrementally. Like the manual gear, this is a wonderful system to fly with because you can keep your eyes out of the cockpit and make precise flap changes simply by the number of times you pump the lever.

It's usually speed, not systems, Mooney lovers dwell upon. Owners of 180-hp, short-body airplanes say to count on a maximum cruise speed of 140 to 147 knots, with the company claiming 150 as the 75-percent-power cruise. With the smaller fuselage and the larger engine, the M20E is supposed to turn in nearly 160 knots at optimum altitude, although owners admit that 155 knots is about right for an unmodified airplane. Compare this to a 200-hp Piper Arrow with its 143-knot maximum cruise, and you see why the Mooney nuts like to talk about speed. The long-fuselage airplanes, by the way, are about 4 to 6 knots slower.

Pilots tired of hearing Mooney owners crow about cruise speeds often point out that the M20 generally is not a great load-hauler. Part of the reason is that the robust structure is also heavy: Most M20Cs weigh between 1,600 and 1,650 pounds empty, which gives a useful load of about 925 pounds. Figure on full fuel and about 640 pounds of passengers and cargo, or three FAA-standard adults and their bags. For the 200-hp M20E and M20F, the useful load is marginally greater, with the increased maximum gross weight of 2,740 pounds partly taken up by higher empty weights. Comparably equipped Piper Arrows tend to be 100 to 200 pounds lighter than the Mooneys, with similar maximum-gross limits.

Short cabin, small engine—the M20C likes to travel fast and light. Simple systems and construction help keep maintenance in check.

Whatever the useful load, there are some practical limits as to what you can get into a Mooney. Despite plaintive cries of the faithful, one can hardly sit in an M20 and not think: "This is not the largest cabin I've seen." Although the measuring tape says the cabin is comparable to other four-place retractables, the perception is that the cockpit is not as large. You sit with your legs stretched deep into the footwells, with the panel close to your chest. In the short-body airplanes, especially, the rear seat cramps legs and feet, a major reason Mooney brought out the stretched models.

Just as the Mooney's cabin proportions are different from the Cessnas and Pipers of the world, so are its handling characteristics. Many pilots moving into Mooneys—especially those coming from Bonanzas—tend to use adjectives like "truckish" and "ponderous" to describe the airplane's handling. The M20's handling is more different than bad.

Among the high points of the Mooney's handling qualities is excellent longitudinal stability. Trim it for an airspeed, and it tends to hold it without much work on the pilot's part. Most models made in the 1960s used what Mooney called "PC," or positive control. It was a simple vacuum-based wing leveler that was always on; you had to press a button on the control wheel to interrupt it for maneuvering.

Pitch trim is accomplished by moving the entire empennage, which is why the trim is often a bit stiff—you're moving more than just a little tab back there, after all. You'll notice a trim change during deployment of the last third of the flaps; there's a strong nose-down pitching moment that should be countered with trim.

When moving into a Mooney, the first thing a pilot tends to hear of is the airplane's tough-to-land reputation. This is far more pilot-lounge talk than reality if you keep some things in mind. Even with the gear out, the M20's clean aerodynamics make it tough to decelerate and descend. And

HOW IT COMPARES

Model	Max Cruise/KTAS	Useful Load	Avg. Retail $
1970 Mooney M20C	150	975	$29,000
1970 Piper Arrow 180	141	1,080	$28,000
1972 Commander 112	130	1,020	$27,900
1971 Cessna Cardinal RG	140	1,170	$28,500
1970 Beech A24R Sierra	131	1,140	$20,500

the gear has low extension speeds, like 108 knots in the C model. Pilots often fly the airplane faster than necessary on approach as a result. In addition, the airplane's slipperiness combined with the short, stiff landing gear make it the quintessential floater.

So if you come over the numbers with a bit of excess airspeed, you can count on watching a healthy bit of runway slip past before the airplane even considers landing. Many Mooney accidents are the result of the pilot trying to force the airplane onto the runway, often nosewheel first, leading to a porpoise. The undamped gear only makes this situation worse. The trick, then, is to fly at the right speed (1.3 times V_{SO}, corrected for weight, works just fine in a Mooney), and don't rush the sequence.

Problems stemming from rough landings are one of the few maintenance concerns with early Mooneys. Nosewheel steering has limited travel, and ramp personnel sometimes exceed the towing limits.

Corrosion of the steel frame has been a problem for some airplanes left outside, and a service bulletin addresses methods of inspection and repair. Make sure any M20 considered for purchase has this SB (Mooney number M20-208A) complied with. Another item to look for is the condition of the fuel tanks. They are simply bays in the wing sealed to hold fuel, and the sealant begins to deteriorate over time.

An early Mooney should not be so hard on the bank account, though. According to the *Aircraft Bluebook–Price Digest*, the average retail price of a 1961 M20B is $19,500, ranging upward to $23,500 for a 1964 M20C, $24,500 for a 200-hp M20E, $29,500 for a 1967 M20F, and finally to $39,500 for a last-year (1978) M20C and $41,500 for a 1977 M20F. A first-year (1977) 201 will set you back $49,000.

If you decide to join the Mooney fraternity, two peripheral items should be considered. First, find a reputable Mooney shop; the airplanes are different in construction and maintenance than most makes. Second, get in touch with the Mooney Aircraft Pilots Association (512/525-8008). It provides tremendous advice to the Mooney owner, gives flight training clinics for its members, can help with difficult-to-find parts, and maintains an insurance program to boot.

Okay, and maybe there's a third item for the new Mooney owner. Get catalogs from the Mooney modification shops—Coy Jacob's Mod Works (800/252-0231) and Paul Loewen's Lake Aero Styling (707/263-0412). Similarities in airframe and powerplant have made the M20 series a modifier's dream come true. Among the most popular mods are late-model windows, refined cowlings (the standard cowls used dozens of machine screws and were difficult to remove for maintenance), a one-piece belly pan (popular for the same reasons as the cowling update), and various speed mods. You can, with the right infusion of cash and effort, turn an M20C into a spitting image of a 201. Of course, you might end up spending a sum equal to the value of the basic airframe to do it—and it's highly unlikely you'll get much of that investment back when it's time to sell—but you wouldn't be alone. A number of owners have doubled their investments in early Mooneys through modification—the ultimate expression of the Type-M personality. □

Mooney M20C
Average used retail price: $21,500–$39,500

Specifications

Powerplant	Lycoming O-360-A1D, 180 hp at 2,700 rpm
Length	23 ft 2 in
Height	8 ft 4 in
Wingspan	35 ft
Wing area	172 sq ft
Wing loading	15 lb/sq ft
Power loading	14.3 lb/hp
Seats	4
Empty weight, typical	1,650 lb
Max takeoff weight	2,575 lb
Fuel capacity, std	52 gal (48 gal usable)

Performance

Takeoff distance, ground roll	815 ft
Takeoff distance over 50-ft obstacle	1,250 ft
Rate of climb, sea level	800 fpm
Max level speed, sea level	165 kt
Cruise speed (fuel consumption)	
@ 75 percent power	158 kt
7,500 feet	(9.5 gph/57 pph)
Landing distance over 50-ft obstacle	1,550 ft
Landing distance, ground roll	595 ft

Limiting and Recommended Airspeeds

V_A (design maneuvering)	115 KIAS
V_{NO} (max structural cruising)	130 KIAS
V_{S1} (stall, clean)	58 KIAS
V_{SO} (stall, flaps)	50 KIAS

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.