MALIBU MIRAGE

Going the original Malibu one better

BY THOMAS A. HORNE

Once a new aircraft has been introduced, it's usually only a matter of time before its manufacturer makes certain improvements to the basic design. The most predictable of these alterations is an increase in engine power, followed by enhancements to the standard equipment package. For example, when Piper brought out the first Comanche in 1958, it came with a 180-horsepower engine. By 1972, when this product line reached its end, a

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single-engine Comanche with a 400-hp engine was available, and so was a twin-engine version—the Twin Comanche.

Now, Piper's latest single-engine design, the six-seat, turbocharged, pressurized Malibu, has received its first boost of extra power.

The Malibu Mirage is equipped with a 350-hp Lycoming engine, which is the biggest single change to the original design. Earlier Malibus came with 310-hp Continental engines; this airplane will no longer be manufactured.

Like its Continental predecessor, the new Lycoming engine has dual turbochargers and intercoolers and provides compressor air for pressurizing the cabin. It's the same basic engine that has seen long service powering Piper's Navajo and Chieftain line of twins.

But the Mirage's engine has some important extras, apart from the additional 40 hp. Dual 70-amp alternators are part of the standard equipment package, as are dual continuously driven vacuum pumps. The extra power and redundancy of the Mirage's electrical systems give an assurance that adequate electrical power will be available in the event an alternator fails. The Mirage, when equipped with the optional $22,190 package of deicing components, is certified for flight into icing conditions. The Malibu Mirage's base price is $349,000.

A word about the Mirage's windshield anti-ice is in order. There are several electrically powered methods of preventing ice formations on windshields. One is to mount a heated plate on the windshield's exterior. Another is to bond heating filaments to the windshield itself. The latter method is better because it clears a larger, less obstructed viewing area. The original Malibu uses a plate; the Malibu Mirage uses the heated windshield.

The Mirage interior has also been overhauled. The seats are larger, and the pilots' seats are especially comfortable thanks to sheepskin covers, another standard feature. For an extra $485, leather seats can be ordered. Some aisle room is sacrificed with the new seats, but anyone would agree that the added comfort more than makes up for this.

Any number of avionics options may be ordered. The standard package is a full IFR complement of Bendix/King, complete with a slaved compass and a KAP 150 autopilot. An international package is available, with dual ADFs or a slaved ADF installation. An electronic horizontal situation indicator (EHSI) is

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also available—the Bendix/King EHI-40—for those wanting the advantages of a multicolor cathode-ray tube display. Various loran receivers (and the Argus 5000 Moving Map Display) are available, as is a 3M Stormscope, Sperry WeatherScout I color radar, and a Wulfsberg Flitefone VI. An independently powered stand-by attitude gyro is among numerous other avionics and interior and exterior options.

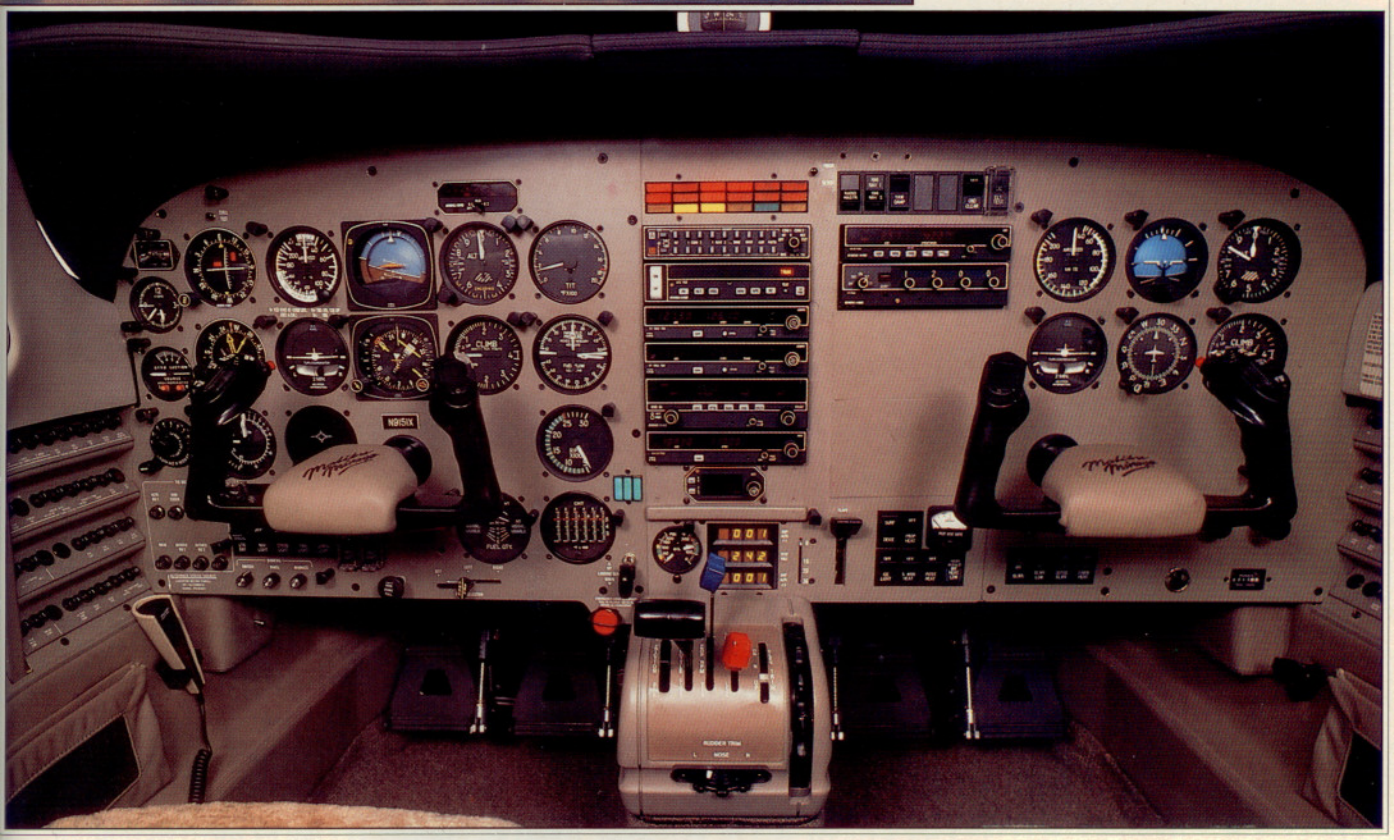
The real pleasure is in flying the Mirage. Ground handling is conventional in all respects, with nosewheel steering requiring very little in the way of pedal pressure. Normal takeoffs are made without flaps, and rotation is initiated at a relatively high 78 knots. Initially, a fair amount of back pressure is required to raise the nose to the climb attitude.

For optimum engine cooling and visibility, 125 knots and full throttle (not to exceed 42 inches of manifold pressure) are used for normal climbs. (Vx and Vy are 81 and 110 knots, respectively.) For extended climbs, the first power reduction is to 35 inches of manifold pressure and 2,500 rpm. Fuel flow in the climb is approximately 37 gph. A glance at the six-point cylinder head temperature gauge—another new standard feature—showed that temperatures remained well in the green, all the way up to our cruising altitude of Flight Level 230. Time to climb was just over 21 minutes.

For a high-speed cruise setting, power was set to 32 inches of manifold pressure, with propeller rpm left at 2,500. The leaning procedure calls for pulling the mixture back to peak turbine inlet temperature (TIT), as long as the redline of 1,750 degrees is not exceeded. Our peak TIT turned out to be 1,700 degrees, as shown on the panel's prominently placed TIT gauge. Cylinder head temperatures settled at 400 degrees, well below the 500-degree redline. The fuel flow was just a hair above 20 gph. Our true airspeed was 215 knots. At the Mirage's ceiling of 25,000 feet, true airspeed is 225 knots. This represents a 10-knot increase over the earlier Malibu's high-speed cruise figures.

Along with us for the flight was Mike Fizer, our associate art director. While I flew with Piper's director of personal aircraft services, Bob Scott, Fizer took photographs and played the role of corporate chief in the aft cabin. He seemed comfortable in the large, bench-style "boss's seat" and amused himself by checking out the refreshment center and other amenities. The 5.5-psi pressurization system kept the cabin at a comfortable 7,000 feet. At the airplane's service ceiling of 25,000 feet, the cabin would be at 8,000 feet.

In the event of a rapid decompression, crew and passengers can activate any of three chemical oxygen generators.



These will provide all of the airplane's occupants with 15 minutes of oxygen—enough for a descent to a safe altitude.

At normal cruise power the Malibu Mirage's range (with IFR fuel reserves) is 1,056 nautical miles. At a long-range cruise power setting, range increases to 1,450 nm.

For the rapid descents that are frequently required when leaving the flight levels, Piper recommends several methods of increasing the Mirage's descent rate. At 165 knots, the landing gear and first increment of flaps may be extended. Set the power at 22 inches of manifold pressure and 2,500 rpm, and the Mirage will descend at a brisk 3,500 fpm. Less spectacular descents can be made by leaving the gear and flaps retracted.

Landings are conventional in most respects. VFR procedure is to extend the landing gear, use 90 knots on downwind, then reduce the airspeed to 77 on final, using full flaps. There is very little change in pitch forces with gear or flap extension. The only peculiarity is one shared with the original Malibu. The airplane's 43-foot wingspan gives a good deal of lift in ground effect, and if the airplane is flown too fast there is a pronounced tendency to float.

Piper's innovative flight training program seeks to standardize training.

While the Malibu Mirage is easy to fly, it is a complex and very capable airplane. Those wanting to take full advantage of the airplane should have an instrument rating and be familiar with high-altitude flying and meteorology.

To accommodate nonpilot customers wanting a Mirage, Piper has announced a new flight training program. This intensive 17-week course begins with a week-long introduction to the basics at Piper's Executive Flite Center in Vero Beach. During this time students will receive dual instruction in a Piper Cadet, pass the private pilot written examination, and reach the solo phase of flight instruction.

In each of the following four months, students spend one week at Vero Beach and also receive training from their own Piper-assigned instructors at their home airports. After nine weeks, students will have received their private pilot certificates. At the end of the training period, students will have earned their instrument ratings, as well as have received training in the systems and procedures of their own Malibu Mirages.

The program speaks well for Piper in that it seeks to standardize training and provide a level of personalized instruction that can only make a student's flying safer. It's an innovative idea, and one that will be interesting to watch develop in the months ahead.

Those who have been following the Malibu product line since its inception in late 1982 are bound to wonder why so many changes were made to the basic Malibu design.

A balanced view is that the Mirage represents a refinement of the Malibu concept. According to a Piper spokesman, the Mirage is a direct response to customer feedback.

Whatever its etiology, customers have been intrigued by this new airplane. More than 90 individuals have ordered Malibu Mirages as of this writing, and so great is the demand that Piper has had difficulty in providing enough airplanes for demonstration rides.

Piper, under owner M. Stuart Millar's steady hand, continues to implement plans designed to stimulate general aviation. Today, it's the Malibu Mirage. Tomorrow, the turbine Malibu. □

Piper PA-46-350 Malibu Mirage

Base price: $349,000

Specifications

Powerplant	Textron Lycoming TIO-540-AE2A, 350 hp
Recommended TBO	2,000 hr
Propeller	Hartzell, constant-speed, two-blade, 80-in dia
Length	28.58 ft
Height	11.5 ft
Wingspan	43 ft
Wing area	175 sq ft
Wing loading	24.6 lb/sq ft
Power loading	12.3 lb/hp
Seats	6
Cabin length	12.33 ft
Cabin width	4.17 ft
Cabin height	3.92 ft
Empty weight	2,626 lb
Gross weight	4,300 lb
Max ramp weight	4,318 lb
Useful load	1,692 lb
Payload w/full fuel	954 lb
Max landing weight	4,100 lb
Zero fuel weight	4,100 lb
Fuel capacity, std	122 gal (120 gal usable) 732 lb (720 lb usable)
Oil capacity	12 qt
Baggage capacity, forward compartment	100 lb, 13 cu ft
Baggage capacity, aft compartment	100 lb, 20 cu ft

Performance

Takeoff distance, ground roll, 20-degree flaps	1,450 ft
Takeoff distance over 50-ft obstacle	2,350 ft
Rate of climb, sea level	1,218 fpm
Max level speed	237 kt
Cruise speed/range w/45-min rsv, std fuel (fuel consumption)	
@ High-speed cruise power	225 kt/ 990 nm (123 pph/20.0 gph)
@ Normal cruise power	215 kt/1,056 nm (108 pph/18.0 gph)
@ Economy cruise power	199 kt/1,184 nm (90 pph/15.0 gph)
@ Long-range cruise power	168 kt/1,450 nm (66 pph/11.0 gph)
Service ceiling	25,000 ft
Landing distance over 50-ft obstacle	1,952 ft
Landing distance, ground roll	932 ft

Limiting and Recommended Airspeeds

Vx (best angle of climb)	81 KIAS
Vy (best rate of climb)	110 KIAS
Va (design maneuvering)	133 KIAS
Vfe (max flap extended)	165 KIAS
Vle (max gear extended)	195 KIAS
Vlo (max gear operating)	
Extend	165 KIAS
Retract	126 KIAS
Vno (max structural cruising)	168 KIAS
Vne (never exceed)	198 KIAS
Vs1 (stall, clean)	69 KIAS
Vso (stall, in landing configuration)	58 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. □