

M600

More than meets the eye!



Larry Pilots the M600

What could the factory have possibly been thinking?

by Larry Johnson, Cutter Texas Piper



...this exemplifies a theme repeated through several areas of the M-600; lower costs, higher reliability, simpler systems!

About two weeks ago I had the rare and unexpected opportunity to be one of the first non-test pilots to fly Piper's new M600. Because of my experience working with Texas Aircraft owners who fly long range missions, the people at Piper thought my operational experience might be suited to provide unique input. The M600 promises to fulfill a very nice performance gap that can reach each coast non stop and be economical at the same time.

Test Flight Day

The scheduled day arrived and I showed up for a 7:00AM departure out of Vero Beach, Florida at the Piper factory. I met Jim Duncan, one of Piper's Engineering Test

Pilots while trying my best to keep my excitement down to a dull roar. Jim and I briefed about what the morning would hold for the flight. I was pleasantly surprised when he said we had a clean slate with which to play. I say again, "What could the factory have possibly been thinking to let me get at the controls of this new beast!" My original plan was to sit right seat and let Jim do the flying which would allow me to observe and take pictures. That idea lasted all of 2 seconds. When we climbed aboard, my base-pilot instincts took over and I jumped in the left seat; I just had to fly this bird myself to compare to the Meridian and other single and twin turbo props and even jets I've flown in my career.

First, the Walk Around and Pre-Flight

A look at a the plane of the M600 from a moderate distance of fifty yards or so might cause you to say “looks like any another Meridian.” But as I got closer, it was clear that first impressions can be deceiving. Most obvious is a much more robust, distinctively shaped wing. In retrospect, some time ago I saw the M600 arrive in formation with another Meridian and as they came in directly overhead for a military like break to pattern, I was bowled over by it’s resemblance to a light swept wing jet from below!



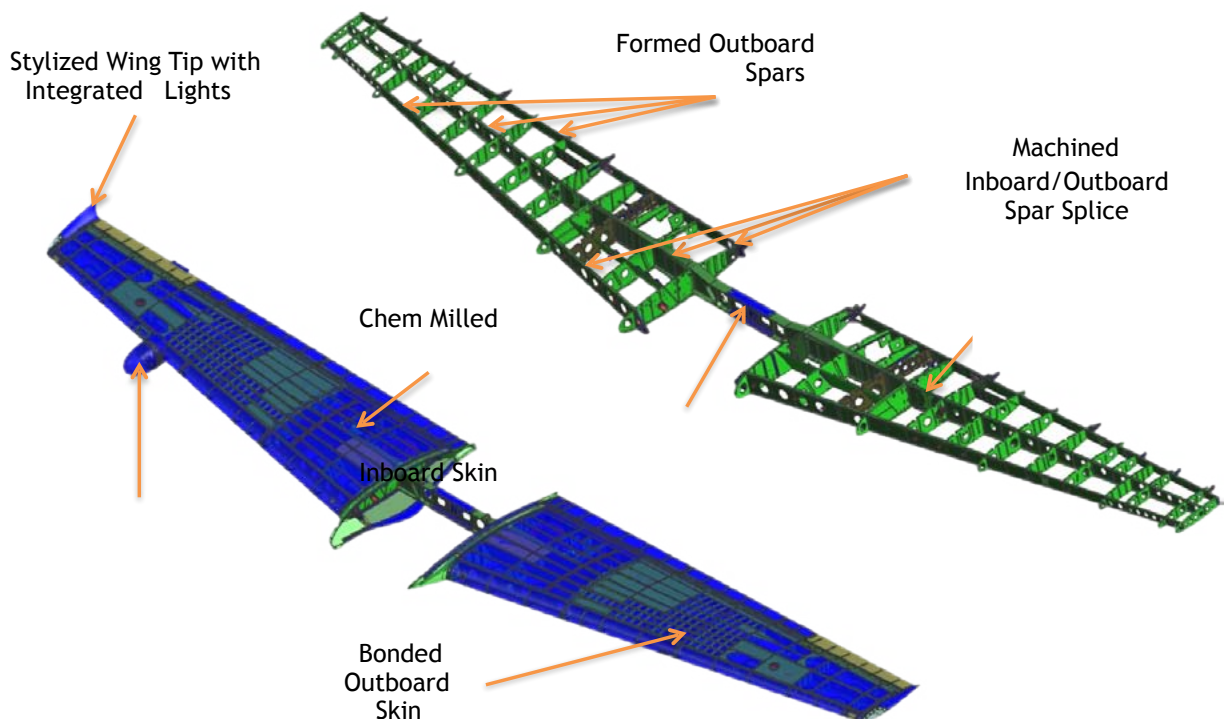
There are several visual cues that the M600 is more than a Meridian. The M600’s new wing is designed to hold all 260 gallons of the fuel needed to fly a considerable 1400 NM. You can’t miss those stylized curvy winglets! While not big and prominent, they make an impressive appearance statement that doesn’t

say “me too”, more like “Oh Yeahhh!” A wing mounted radar pod housing Garmin’s GWX-70 integrated radar is a fresh announcement that this is not just a warmed over Meridian. A less obvious improvement, is the leading edge cuffs under the de-ice boots that are removable, which will come in handy for those unanticipated brushes with a fuel truck, post, or hangar door.

“Lower costs, higher reliability, simpler systems!”

The M600’s de-ice boots are completely new to the Piper line and eliminate use of vacuum pumps and traditional control switches. Further wing examination reveals a few more access bays and inspection points, making repairs and inspections easier and less labor-intensive. All of this exemplifies a theme repeated through several areas of the M600: Lower costs, higher reliability, simpler systems!

The M600’s landing legs incorporate a beefier strut and gear actuator structure than the Meridian, with bigger tires and slightly different strut positioning. Inspection of the brakes revealed a beefy braking





“This is, without question, the most stylish, detailed, and elegant interior to ever come out of Piper”

system ready to handle the nearly 1,000 additional pounds of moving mass on landing. Meridian pilots will take note; flap speeds will be a bit lower at 145 kts indicated. Flap positions are now like business turboprop twins and jets with only two positions after 0 degrees: approach and full flap. 61 kts stall speed is still the certification standard it meets so the flaps





are effective and substantial. Engine air intakes and inspection incorporate the same system that make the Meridian so distinctive and elegant – still no giant sucking guppy mouth. The tried-and-true Pratt & Whitney PT6-42A engine is installed, but with the wick turned up to produce 600 horses at the prop while maintaining the impressive 3,600 TBO threshold.

Climb Aboard

The M600 features a new interior that will be the production interior, which is so beautifully featured in Piper's mockup. Entry and exit is through clam shell doors and the new interior includes a completely new stylized door handle and locking system. New inside and out is the word for the M600 with tasteful design and styling touches reflected inside walls and seats with elegant leathers and fabrics. New wood grain and polished aluminum cup holders are sized to fit your can of soda or travel mug of coffee.

Entering the cockpit still requires stepping across the main spar cover however, comfortable and significantly improved fold over seats, optimized spacing between

throttle quadrant and the dual touch pad controller placement make entry easier, control access is ergonomically correct, and the area comfortable and roomy.

The panel layout is familiar but entirely different. It screams sophistication in technological advancement Piper has always been known for. The bird I flew is a conforming test vehicle so still has cables, wires, and test boxes running everywhere without the interior finishing of the production aircraft but was equipped, panel and system wise, as it will deliver soon... loaded!

[Please click here for a full review of all the autopilot safety enhancements.](#)

MAXIMUM CRUISE SPEED
260 ktas | 482 km/h

RANGE WITH 45 MIN. RESERVE
1,300 nm | 2,407 km

FUEL CAPACITY
260 US gal | 984 liters

MAXIMUM APPROVED ALTITUDE
30,000 ft | 9,144 m
For Airspace Requiring RVSM,
limited to 28,000 ft | 8,534 m

TAKEOFF DISTANCE
Total Over 50ft Obstacle:
2,530 ft | 716 m

LANDING DISTANCE
Total Over 50 ft Obstacle:
2,125 ft | 648 m

CABIN PRESSURIZATION
Maximum Cabin
Differential: 5.6 psid

All performance data and specifications are preliminary and subject to change.

A quick weight and balance check reveals that with two pilots weighing in at over 400lbs, test equipment, ballast and full fuel, we could still put a load of 150 lbs aboard. The M600 is able to carry a bit better full fuel payload over the M500 out to its maximum distance of 1400 NM plus NBAA IFR reserves. What is really outstanding is the ability to carry 1000 lbs to over 800 NM or more which is in the “Bladder Range Reality Zone!” – a place where more business and family use will likely see realistic operational need with a big load.

Starting the engine is as straightforward as it is for the M500. Anyone who has flown the Meridian will find this process a no-brainer, and it remains the most simple and intuitive turbine start process in the industry.

While taxiing you get the first hint you’re at the controls of a heavier more powerful turbine. After a quick familiarization with the aircraft and about 45 minutes flying time I felt relatively comfortable with

the system. I loved the ability to split screens and display a wide variety of data according to what the pilot desires to see. While it was different than what we’re flying now in the Piper M-class, it is familiar enough to make it an easy learn, and it is intuitive.

The accessibility of touch screen control pads and throttles was superb and does not require large head movements causing disorientation. Regularly used information such as selected frequencies and flight data are conveniently displayed on both the PFD and MFD displays, right in front of the crew.

Flight controls allow up to 60 degrees aileron deflection vs. the M500’s 45 degrees. This difference was unnoticed in flight, and there is an elevator down-spring which comes into play at no or slow speed. The only time I noticed this effect was at landing touchdown when holding the elevator up at full deflection took extra force. Overall, the flight control differences added to the superb flying stability and control harmony overall.



Flight Time

With run up complete and flight plan loaded, the pressurization is scheduled and managed by the G-3000 system, it only requires pilot confirmation as part of the checklist that field elevation is set. One more pilot workload item removed. Cleared to depart, flaps set at takeoff, bringing the throttle to full power calls for a max torque of 1575 lbs rather than 1310 lbs for the M500.



Raw power was noticeable as the extra 100 horses kicked in. The takeoff roll distance was similar to the M500 with rotation speed of 85 kts required and a positive up move to nose up. Climb performance was impressive and continued the undeniable feeling of stability and strength. We got unrestricted climb which was important to compare how the extra one-hundred horses handled carrying almost 1000 more pounds through the climb. The climb rate was close but paced behind the lighter M500 by about 100 ft per minute. Once trimmed it stayed where put and climbed effortlessly. The M600 will, like the M500 meet or arrive at altitude sooner than many higher-horsepower singles, multi-engine turbines.

At 17,500 ft we leveled off a short eleven or twelve minutes after takeoff. We left the power up to maximum and saw the indicated airspeed exceed 210

kts. quickly, with no overspeed alarms signaling the improved VMO! Fuel burn during climb and low altitude operations was well up into the higher 40s range so this beauty is definitely happiest at altitude and over medium-to-long range missions. The fuel burn rate dropped off at level off and settled down to only a few gallons more per hour than where the M500 operates currently. Piper's briefing suggests a modest increase over the M500 at cruise speed to around 39 gph Vs. 36 gph, depending on altitude and settings - this is a true bargain compared to some competitive thirst profiles and is immensely competitive to every production jet, twin, and some singles, now or in the near future.

While we did not get to the flight levels during this flight, setting power from the charts aboard showed normal cruise power at 17,500 to be somewhat faster than the M500. Piper has confirmed a practical operational speed range of 257 kts at normal cruise settings of 24,000 to 28,000 ft, with up to an impressive 274 kts at high speed cruise power settings at the same altitudes. The feeling that I was at the controls of a much more substantial bird kept invading my thoughts as the flight progressed.

This was reinforced by the feeling of power, rate of climb to altitude, feel of the controls and stability maintained in approach.

The autopilot got duty time at 17,500 ft to allow me to get more familiar with the G-3000 and we orbited the area while bringing up various display configurations of 60/40 splits, pilot side versus co-pilot side. I even configured radar to display on the PFD along with approach charts and flight displays all right in front of me. If you are up to date on recurrency in a G-1000 equipped aircraft and your skills are reasonable, you'll adjust to the G-3000 without much effort, it was easy and intuitive.

I tried my hand at handling and controllability with turns exceeding 45 degrees of bank. ESP was turned off so it never nudged me back to a less aggressive bank angle. There was stability galore - heavier controls than the M500 yes, truckiness no! Once trimmed, excursions from the attitude established were minimal. Next, slow flight, results very recognizable in that once trimmed no undue forces or control inputs

were required. There was little hint of “mushiness”, which is the sole of the M-Series wing and its ability to climb and operate at high altitudes. I slowed both clean and dirty to a few knots above stall speed and operated comfortably in turns of up to 20 degrees bank. I performed a couple complete stalls in dirty configuration and found the result to be a tad more tame than the M500 stall in this mode.

Warnings came just as expected both aurally and with pre-stall buffet, clearly signaling stall was eminent.

Stall break was clean and straight ahead with no roll noted to either wing just simple and straight ahead. Both stalls saw full recovery in 300 to 400 feet.

One thing did shock me: after an hour in the air (with power usually up at higher fuel drinking ranges of 45 gph+) plus nearly 30 minutes of ground run-up, range rings on the Garmin display confirmed that at current fuel load, altitude, power ~1380 ft lbs torque, I could fly from our present position over Vero Beach and could go non-stop to my home airport in Addison, TX. We still had over 1,000 NM of range available, plus

more than one hour fuel reserves! Now came the big test for me: VMO speeds and rates. Piper has worked hard to get approval from the FAA to certify at a VMO limit of 250 kts indicated, which the aircraft will certify with. Jim encouraged me to leave the power up since this is where this increased ability will come in most handy in normal operations.

Each test of VMO was performed with power up near 1550 ft lbs. I engaged the autopilot by setting Flight Level Change (FLC) using an airspeed setting of 235 kts during the maneuver and saw a rate of descent around 2,300 ft per minute initially. Obtaining 250 kts, was a walk in the park! The rate of descent at one point approached 3000 ft per minute but settled back to the mid 2,000s. One of the engineers monitoring our flight back at Piper, said he saw our ground speed exceed 318 kts... nice!

Here is another of those “this bird is really something else” feelings. Now at 10,000 feet and just off the shoreline from Vero I decided to fly the RNAV 30 approach to landing. We were only about 15 miles from the initial approach fix and still 8,000 feet over





235 kts indicated going to 250 kts VMO into the descent going back to Vero Beach, Florida.

scheduled crossing altitude for initial approach. With only a slight reduction in power, I pushed the nose over, maintaining somewhere near 210 kts or so with a descent rate over 1,700 ft per minute, and made the fix at the charted crossing altitude.

The feeling of confidence in being able to do this was comforting. Once at the fix and altitude, I simply pulled power back to get below approach flap speed of 147 kts, (now 15° instead of 10°) with no worry of running over the myriad of training students operating in the area or difficulty getting established for a stable approach. There are only three flap settings; 0 degree (no) flaps, takeoff / approach 15 degrees, and full at 35 degrees.

Completing the approach checklist and workload was fast and easy as the pressurization was automatically set with the cabin near landing pressure and altitude. All that was left was to get the gear, pumps and ignition at FAF. The approach was hand flown and was remarkably easy to get established and set up for a stable approach. Just easy and solid. Crossing the numbers with full flaps and milking the power saw a touchdown at 85 kts. The entire approach was flown about 5 kts faster than would have been in the M500.

After a quick and uneventful taxi back, we flew another circuit. My departure was more sure handed and the arrival more precise resulting in a close approximation of a smooth touchdown. Remember me mentioning the braking system? Well, it is much more robust and capable and resulted in a confident feeling in the aircraft's stopping authority. They handled stopping duties more familiar to what I remember from Citations and King Airs with effective braking response and little fade. Landing and stopping

distance was similar to the M500 so no big changes required to runway lengths are expected. After landing and taxi duties were brief and simple. Shutdown no different than what we do in the M500. We were in the air exactly two hours and our remaining fuel load at shutdown was right around 1330 lbs of fuel. In case you have not figured this out yet, that is 190 lbs more fuel than a fully topped off M500 Meridian.

Several thoughts come to mind to summarize my impression of the M600:

- No one can characterize this as a sports car
- Corporate pilots won't, can't, thumb their noses at it
- No longer will we hear "I just wish I could carry a little more load a little further"
- This is not a time builder! Rather it is a capable, long range, high payload, modern and sophisticated transport in every way. This is a destination machine indeed!

What an honor it was to be given the opportunity to fly this unique new member of the Piper family. Any of my Piper Dealer colleagues could have done a stellar job with an efficient and accurate review, and I'm lucky to have been chosen for this assignment.

Piper has long been known for their ability to engineer, design and build an aircraft that is a delight for owner-operators to fly with competitive performance and operating costs. Well, they've certainly done it again with the M600, but with all my years of flying so many makes and models of aircraft, it's clear to me that the M600 will set a new standard in the industry.

This Piper is better than ever!