Aircraft Report M 600

Piper Aircraft launched in 2015 its new developed turboprop M600; which is a further development out of the former Meridian turboprop single. With this it achieved to stand out against pricier turboprops and new light jets.

The development saw four big changes:
- first and most important, a new designed clean sheet wing - the latest Garmin G3000 touchscreen avionics - boast of flat-rated horsepower by an extra 100 shp - improved stylish interior

Piper started the process in late 2011 by asking dealers and customers what they wanted from the Meridian. The consensus was that it needed to fly farther, carry more and go faster.

The hard numbers many asked for included a range boost to at least 1,000 nm, a payload of 800 pounds or better and a 250-knot vmo.

With the M600, Piper not only met those goals, it exceeded the parameters while also making other noteworthy improvements.

Boosting the available power of the airplane's Pratt & Whitney Canada PT6A-42A engine to 600 shp in the M600 helped to increase performance.

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Redesigning a clean-sheet wing lead to performance improvements and the M600's new wing carries an impressive 90 gallons more Jet-A compared to the original.

The extra fuel coupled with the improved wing translates to a welcomed increase in range to 1,484 nm in the M600 at its long-range cruise speed of 184 ktas (with a 45-minute reserve). At the M600's max cruise speed of 274 ktas, range still stretches to more than 1,000 nm.

Most impressive is the M600's ability to carry 1,000 pounds worth of load (passenger & baggage) on 800 nm legs.

The new wing, with its slightly upturned tips and thick chord line, looks well fit on the PA-46 airframe. The M600's leading-edge cuffs, with integrated deice boots and a new in-wing radar pod that houses Garmin's GWX 70, finish off the look.

The increase in flat-rated horsepower provides more impressive climb times at lower weights and temperatures, while the new wing enhances performance at altitude. Control harmony as well as was low-speed handling in flight was excellent.

At 263 ktas at our midweight with two persons aboard, plus 200 gallons of fuel and a temperature of ISA+15, one can expect to see a fuel burn of around 39 gph at a reduced power setting cruising in the mid-20s, which compares quite favourably with the competition. Daher's TBM 930, for example, flies 60 knots faster than the M600, but it burns 60 gallons an hour and costs about $1.5 million more to buy.

For a base price of $2.853 million, the M600 is a serious alternative to the more expensive and slightly faster TBM models from Daher. Popular options will put the M600 slightly above $3 million, but that's still well below the TBM 930's $4 million-plus price tag.

The M600's cockpit feature better materials, better lines and a better overall look.

Nicely rounded table accents, lower side panels, cup holders and USB charging ports positioned within easy reach of all the seats provide together with the comfortable leather upholstery a cosy cabin atmosphere.

The G3000 cockpit features an array of envelope-protection technologies designed to prevent loss of control:

Garmin **Synthetic Vision** Technology takes situational awareness to a new level, regardless of what you can or cannot see through the windshield. Acquiring information from multiple certified databases, synthetic vision graphically depicts obstacles, terrain, water, and airports, providing you with all of the information you require for safer travel.

Under-speed Protection (USP) is an intuitive flight director function that reacts to under-speed conditions in a way that allows the autopilot to remain engaged, but prevents the airplane from stalling.

With stall protections developed as part of the USP system, **coupled go-around** is possible without disengaging the autopilot. With this feature, the autopilot remains engaged and will fly the missed approach. If power is not added, the USP system will maintain a speed just above stall warning, adjusting airplane pitch attitude as required.

Preventing the onset of stalls, spins, steep spirals, and loss-of-control conditions, this passive feature discourages aircraft operation outside the desired flight envelope. **ESP** functions independently of the autopilot system, and only takes effect when the pilot is hand-flying the aircraft with the autopilot disengaged. It works as a soft barrier to keep the Piper M600 inside the preferred performance envelope by automatically engaging servos to slightly correct control surface positions when the aircraft exceeds one or more flight parameters, essentially encouraging it back inside optimal flight specifications.

Level Mode, a function that, when triggered, will return the aircraft to a wings level attitude with zero vertical speed. Upon activation, Level Mode will automatically engage the flight director and autopilot functions to return the aircraft to straight and level flight. By simply pressing the blue button, Level Mode is activated and cancels all armed and active modes, without impeding other autopilot modes available. This ingenious additional safety measure provides further reassurance for pilot and passengers in the circumstantial case it would be required.

The standard GTX 33ES provides **ADS-B out** functionality. **ADS-B In** can be achieved by adding the optional GTS-825 Traffic Advisory System. The GTS-825 (ADS-B In) traffic systems provide a comprehensive traffic picture. It can track up to 75 targets within a 40 nm interrogation range. Additionally, spoken ATC-like aural alerts help manage your safe flight.

G3000 in the M600 features three main flight displays with split presentations that allow for seemingly endless configurations of information and data. For example, the PFD can be split 60-40 to show the primary view, with speed and altitude tapes next to the digitized Jeppesen approach plate.

Below the primary displays are two GTC 580 touchscreens positioned in portrait format.

The backup flight instrument is the popular Aspen Avionics Evolution PFD.

At slower speeds, the M600 really is a joy to fly. The extra 100 hp in the M600 are noticeable on take-off, with full power calling for a max torque of 1,575 pounds versus 1,310 pounds in the M500.

M600 has only three flap settings: up, approach and landing. Slowing to 80 to 85 knots on short final feels just right. The M600's brakes are big and beefy

The PA-46-600TP earned its type certification earlier this year, and a handful are now flying with customers. Piper has selected Legacy Flight Training in Vero Beach for M600 initial training. A five-day course is included in the airplane's purchase price. Warranties on the airframe, avionics and propeller are five years, while the engine has a seven-year warranty from Pratt & Whitney. Despite the increase in power, engine TBO remains 3,600 hours.

Options available on the 2016 M600 include Garmin's Surface Watch taxi safety system, an Iridium voice and data transceiver for worldwide calling and text, TCAS I traffic collision avoidance system, and a variety of bundled option packages. The GWX 70 weather radar, deice boots, USB charging ports, Aspen standby instrument, and envelope-protection safety features all come standard.

With the M600, Piper has met its design goals and delivers what the market asked for.

With operating economics that are the envy of many other turboprop owners, and a cockpit and cabin finally on par with the top-tier competition, The M600 is a serious to consider contender.

Piper M 600	Specification
Base price	$2.853 million
Engine	Pratt & Whitney PT6A-42A (flat-rated 600 shp)
Prop	Hartzell 4-blade
Cabin length	12.2 feet
Max cabin width	4.1 feet
Max cabin height	3.75 feet
Seats	6
Length	29.8 feet
Height	11.4 feet
Wingspan	43.2 feet
Wing loading	28.71 pounds/square foot
Power loading	10 pounds/shp
Max ramp weight	6,050 pounds
Max take-off weight	6,000 pounds
Standard empty weight	3,650 pounds
Useful load	2,400 pounds
Max usable fuel	260 gallons
Payload (full fuel)	632 pounds
Max range	1,484 nm
Fuel flow (max cruise)	48 gph
Fuel flow (long range)	39 gph
Max operating altitude	30,000 feet
Max cruise speed	274 ktas
Stall speed (MTOW)	62 kias
Take-off, 50-foot obstacle	2,635 feet
Landing, 50-foot obstacle	2,659 feet