



## **Daher.** L'usine de Luceau mobilisée pour le nouvel avion d'affaires

Dévoilé le 12 mars dernier, le TBM 900, nouvel avion d'affaires de Daher, a profité au site sarthois de l'avionneur. L'usine de Luceau a en effet produit les éléments de tuyauterie de l'appareil. Le dernier né de Daher est le fruit d'un programme de trois ans qui a nécessité 160.000 heures de travaux de recherche et développement, et plus de 200 heures d'essais en vol, pour un

investissement global de 20 millions d'euros. Le groupe annonce une quarantaine de commandes pour cette année, avec une capacité de production annuelle de 50 machines. Les trois premières unités ont déjà quitté l'usine d'assemblage de Tarbes pour les États-Unis courant mars. Prix du TBM 900 au catalogue : 3,7 millions de dollars.

**HAUTES-PYRÉNÉES****Daher-Socata lance le TBM 900**

Daher-Socata poursuit l'histoire aéronautique bi-gourdane en lançant le TBM 900 avec six places, un mono-turbo-



propulseur de nouvelle génération, construit à Louey près de Tarbes. Il prend la suite du TBM 850 lancé en 2008, en visant l'entrée de gamme sur le marché de l'aviation d'affaires essentiellement américain. Il peut franchir 3 200 km, jusqu'à 330 nœuds, voler à 610 km/h à 10 000 mètres d'altitude. Le TBM 900 a déjà une quarantaine de commandes et les trois premiers exemplaires ont été livrés à un client en Floride. Le TBM 900 est facturé 3,71 M\$. Une nouvelle hélice à 5 pales en composite fournie par Hartzell, une entrée d'air repensée, l'ajout de winglets illustrent les principales modifications du TBM qui conserve son moteur. Une quarantaine d'exemplaires seront assemblés chaque année. L'essentiel des pièces sont produites par le groupe à Louey, au Maroc, à St-Julien-de-Chédon dans le Loir-et-Cher, à Luceau dans la Sarthe plus la sous-traitance. L'activité TBM représente près de 25% du pôle aéronautique de Daher-Socata à Tarbes avec 300 salariés sur un effectif de 1300 personnes. Un millier de salariés sont affectés aux travaux de sous-traitance réalisés pour le compte d'Airbus, ATR, Eurocopter, Dassault, Bombardier, Embraer.



## ► Hautes-Pyrénées. **Daher-Socata** sort son TBM 900

Plus performant, plus confortable : le nouvel avion d'affaires à turbopropulseur de Daher-Socata, baptisé TBM 900, a été dévoilé mi-mars après trois ans de développement. La société a déjà enregistré 40 commandes sur cet appareil certifié fin 2013 et lancé en production. Le groupe Daher-Socata a réalisé 1 milliard d'euros de CA en 2013 et emploie 8 000 salariés.



[www.aerobuzz.fr](http://www.aerobuzz.fr)

Date : 11/04/2014

Auteur : -

## Daher-Socata livre le premier TBM900 européen



### Livraison du premier TBM900 européen à Aero 2014 © Daher- Socata

Aero 2014 a constitué, pour le TBM900, ses grands débuts sur la scène européenne, une semaine seulement après sa présentation au marché américain, à l'occasion du salon Sun'n Fun (Lakeland). C'est également dans l'enceinte du salon de Friedrichshafen qu'a eu lieu la première livraison à un client européen, en l'occurrence à RAS, le revendeur allemand du constructeur français.

## Évaluation du site

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Cible  
Spécialisée

Dynamisme\* : 22

\* pages nouvelles en moyenne sur une semaine



Publication : LES ECHOS 26/03/2014 Auteur : Pierre ETCHELEKU

**(64) - Un avion d'affaires qui fait la part belle aux sous-traitants béarnais**

Daher-SOCATA (450 salariés) fabrique à Tarbes, le TBM900 (6 places, autonomie de 3 200 kilomètres, 3,5 millions de dollars) qui a séduit un grand nombre d'hommes d'affaires sur le marché américain et dans les pays émergents. Les sous-traitants béarnais bénéficient de ce succès : 660 appareils déjà vendus depuis la première version en 1991. 20 millions d'euros ont été consacrés à son développement.



## **Daher-Socata.**

### **Un nouvel avion, le TBM 900**

C'est à Tarbes que le groupe Daher-Socata vient de dévoiler son nouvel avion, le TBM 900. Après plus de trois ans de développement, l'avion est déjà en production, commandé et prêt pour les premières livraisons. Ce nouvel avion d'affaires à turbopropulseur de la famille TBM, baptisé TBM 900, a fait l'objet d'une optimisation de son aérodynamique et de son installation moteur. Développé dans le cadre d'un programme qui a nécessité 160.000 heures de travaux de recherche et développement, et plus de 200 heures d'essais en vol. La vitesse de croisière maximale est portée à 330 nœuds (611 km/h) à l'altitude de 28 000 ft (8 500 m). La distance franchissable maximale est désormais de 3.200 km avec une consommation de carburant de 140 l/heure.



[www.aerobuzz.fr](http://www.aerobuzz.fr)

Date : 09/04/2014

Auteur : Aerobuzz.fr

## Coup d'envoi d'Aero 2014 à Friedrichshafen

La 22ème édition du salon Aero qui a lieu du 9 au 12 avril 2014 à Friedrichshafen, regroupe cette année encore environ 600 exposants venus du monde entier. Aerobuzz.fr vous fera vivre, toute la semaine, en direct l'actualité du plus grand rendez-vous européen de l'aviation générale. Restez connectés !

Alors que le salon Sun 'n Fun de Lakeland (Floride) a fermé ses portes le week-end dernier, Aero 2014 ouvre les siennes, ce matin, sur le bord du lac de Constance (Allemagne). Dans la foulée du show américain, le rendez-vous de Friedrichshafen devrait offrir son lot de nouveautés, même si une partie a déjà été dévoilée par Sun 'n Fun. Tout en se gardant de tomber dans le chauvinisme primaire, force est de reconnaître qu'en aviation générale, depuis des années, les constructeurs européens font la course en tête. Il est donc logique qu'ils soient plus actifs à Friedrichshafen, où se déroule le plus dynamique « leur » salon, lequel spectacle aérien mis à part, n'a, du point de vue commercial et médiatique, rien à envier à Sun 'n Fun, ni même à AirVenture (Oshkosh).



en gamme © Messe Friedrichshafen

Au fil des éditions, Aero est monté

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Spécialisée

**Dynamisme\*** : 23

\* pages nouvelles en moyenne sur une semaine

Près de 600 exposants sont présents dans les 10 halls de l'emblématique parc des expositions de Friedrichshafen. Au cours de ces dernières années, et particulièrement depuis que le salon est passé sur un rythme annuel, l'éventail s'est élargi vers le haut de gamme avec la présence désormais systématiques de biréacteurs d'affaires : Citation Mustang de l'américain Cessna et Phenom 100 et 300 du brésilien Embraer notamment. Cette année est annoncé le nouvel Eclipse 550 récemment certifié par la FAA. Les visiteurs découvriront également le nouveau TBM900 de Daher-**Socata**, une alternative sérieuse aux VLJ (very light jet).



**Le salon Aero est devenu pour les constructeurs aéronautiques et les équipementiers un rendez-vous incontournable.** © Gil Roy / Aerobuzz.fr

Mais c'est évidemment du côté des halls B que viendront les nouveautés les plus inattendues. Ce sont les halls qui regroupent les constructeurs d'ULM, de VLA et de LSA. C'est là que tchèques, slovénes, polonais, etc font battre le cœur d'Aero. Juste en face, trône l'aviation certifiée où Tecnam, Pipistrel et Flight Design feront le point sur leur quadriplace respectif en cours de développement. Au-delà des avionneurs, le gros des exposants est constitué par les équipementiers.



**Pour la troisième fois, il y aura à Aero 2014, un espace consacré tout spécialement aux systèmes de propulsion dans l'aviation** © Gil Roy / Aerobuzz.fr

Aero 2014 a réuni pas moins de 22 exposants dans l'espace motorisation (« *Engine Area* »). On ira y chercher des informations sur la certification annoncée du Cessna C182 à moteur diesel SMA, mais aussi sur la stratégie du chinois AVIC qui après avoir racheté Continental Motors s'est offert Thielert. Sur « *Avionics Avenue* » sont rassemblées toutes les nouveautés, et elles sont nombreuses, en matière d'équipement de bord.



**Les drones sont appelés à occuper une place de plus en plus importante au sein du salon Aero, comme de l'aviation générale** © Messe Friedrichshafen

Signe des temps, Aero inaugure, en 2014, un nouvel espace d'exposition dédié aux drones. Déjà présents sur des stands isolés, les drones sont cette année, regroupés en un même endroit où seront d'ailleurs proposées des présentations en vol. Parce qu'il est en osmose avec l'aviation générale, le salon de Friedrichshafen en est aussi un véritable moteur. A partir d'aujourd'hui, rester branchés sur Aerobuzz.fr. Tout au long de la journée, et jusqu'au week-end prochain, nous vous ferons vivre Aero 2014 en direct.

**La rédaction**

Date : 03/04/2014

Auteur : -

## Première présentation publique du TBM900 à Sun 'n Fun

Le salon Sun 'n Fun qui se déroule du 1er au 6 avril 2014 à Lakeland (Floride, USA) constitue la première présentation publique du nouveau TBM900 de Daher-Socata. Trois semaines après son lancement spectaculaire à Tarbes (12 mars), suivi des premières livraisons en Floride (20 mars), la nouvelle version du TBM est présentée, pour la première fois, au public américain. Le public européen aura la possibilité de le découvrir à son tour, la semaine prochaine, au salon Aero de Friedrichshafen (9-12 avril).



Stéphane Mayer, PDG de Daher-Socata, entouré de son équipe, à Sun 'n Fun 2014 © Daher- Socata

Pour le lancement américain du TBM900, l'équipe dirigeante de Daher-**Socata** au grand complet a fait le voyage. Stéphane Mayer, le PDG, qualifié sur la machine, a participé au convoyage d'un des deux appareils exposés sur le stand. La constructeur français fait d'ores et déjà état de plus d'une quarantaine de commandes pour ce nouveau modèle.

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Cible  
Spécialisée

Dynamisme\* : 14

\* pages nouvelles en moyenne sur une semaine



**Jacques Callies reports on the Tarbes-based manufacturer's secret project: a complete aerodynamic makeover of the already successful TBM 850. The new TBM 900 is set to become the company's sole model**

**T**hree years ago, in the utmost secrecy, Daher-Socata gave its design office a challenge: look at how to improve on the TBM 850. No need to start from scratch when you already have a high-performance aeroplane which is loved by its pilots and owners, and which continues to enjoy healthy sales. The result is the new TBM 900. And while the name doesn't mean that the engine develops 900hp, its performance in comparison with the TBM 850 might make you think otherwise, as we shall see.

Despite regular visits to the factory in Tarbes, in the foothills of the Pyrenees, the secret was well kept. Everyone thought that Daher-Socata was working on a completely different aircraft. It was evaluating the prototype Grob SPn composite business jet, and had recruited Christophe Robin,

the founder of DynAero, known for his creative talent and mastery of composite materials, which he had demonstrated when manufacturing lighter aircraft.

We knew that the jet evaluation had served only to confirm that it was not the path to go down, but that was about it. So on 6 March we were quite taken aback to discover that a team of 125 people had worked on a very different project: improving the TBM 850 to make it a more efficient and spectacular aircraft on several levels, namely performance, handling, noise and carbon footprint.

It's tempting to make a comparison with the Airbus A320neo (New Engine Option), which burns less fuel, pollutes less and flies further than its predecessor. The same is true in spades for the

TBM 900, but where Airbus used new engines, Daher-Socata kept the same 850hp PT6A-66D and concentrated on the aerodynamics.

The TBM design dates back more than 30 years and could certainly be improved. Today, 3D CAD modelling and computational fluid dynamics programs have largely taken the guesswork out of aircraft design. The computers were let loose on the TBM to check the aerodynamic choices of the past. New parts were created from composite materials, with complex and precise shapes, and finally the results were checked by extensive flight testing, using five synchronised GoPro cameras to film tufts of wool, which make the aerodynamic flows visible.

To sum up over three years work in a few lines, the changes have focused on anything that could be improved aerodynamically. The result is an aeroplane that even non-experts can see is different from the 850. There's a modern Hartzell five-blade propeller, and everything from the propeller back to the firewall has been redesigned to optimise the efficiency of the air intake and cooling. There's a new inertial separator, straighter exhaust outlets, double main-gear doors, winglets whose profile is copied in the fillet that blends the fuselage to the tail, and a new tail cone. With the exception of the exhausts, all of the new parts are made from carbon fibre.

At the same time, Daher has reviewed the ergonomics of the aeroplane, interviewing owners to find out what they would like corrected, starting from the principle that the simpler the aircraft, engine and avionics are to use, the better it will be for everyone. This is particularly true for the TBM, which is generally flown by its instrument-rated private pilot owner rather than a hired professional. The work focused on all aircraft systems and some improvements are

truly spectacular. Pressurisation is now totally automatic, there is auto-start for the PT6 and a torque limiter to prevent inadvertent damage from a moment's inattention. A 300 amp generator replaces its 200 amp predecessor, and if it fails there's a 100 amp standby alternator that keeps all the aircraft systems running – including de-icing.

The cockpit has also been improved. The bottom of the panel has been redesigned giving more knee room for larger pilots, there are new controls on the yokes and the centre console now has just one engine control. The Garmin G1000 software has been reprogrammed in order to simplify engine management, and all controls, buttons and switches have been redesigned and modernised, from the landing-gear selector to the LED landing-light switch and the circuit breaker panel. And as the devil is in the detail, two USB ports have been added to connect the indispensable iPads. Note to all aircraft designers from microlights up: it's time to include USB charging ports!

### Speed and simplicity

When I learnt of the tremendous work done, I was very interested even before seeing the new machine... and a little ashamed at having missed so many clues. With hindsight, this change was so predictable, especially when you know that Nicolas Chabbert, Director of Daher's Aircraft Division, worked at Mooney when the small Texan manufacturer developed its Ovation2 from the M20. As I am known by the factory to be a long-standing admirer of the TBM, I was privileged to be invited to a confidential presentation of the new aircraft a week before its official unveiling. How can I not be an admirer when I have engraved in my mind the

memory of a take-off at 7am from Le Bourget in a TBM 700, and an arrival in Dallas the same night! Without any particular preparation, without ferry tanks and with the inevitable delays for Customs clearance in America. What other single-engine aircraft could fly 4,616nm with four stops in less than 24 hours?

Now, Nicolas Chabbert had arranged for me to take the controls of the 900. He placed me in the

hands of Chief Test Pilot, Stéphane Jacques, a friendly and modest man who gives no due to his impressive background as a fighter pilot and military test pilot. We began by walking around the 900, and as the aeroplane was parked next to an 850, the drag-reducing modifications stood out. The aircraft has always looked superb, but now even more so with its new winglets. According to

Stéphane, the winglets, which reduce the induced drag without increasing the wingspan, have no measurable effect on stall speed but improve climb and cruise performance. In addition they improve handling.

On a turboprop (or any powerful single) in a crosswind the propwash affects one wing more than the other when you are slipping. With flaps down, this

gives a fairly strong rolling effect. This can be countered by increased dihedral, but regular dihedral has various other drawbacks, notably, Dutch roll at altitude. The winglets increase the dihedral effect, allowing greater power to be used with the flaps down and taming the behaviour in a slipping approach. The limitation to 700hp in the 850 was because of this effect. The winglets allow the increase to 850 with flaps down.

Another important novelty is the disappearance of power limiter. The TBM 850 could only use 700hp for take-off. In the 900, full power can be used, with a torque limiter active throughout the flight envelope, and once settled in the owner's seat I notice that the power-limiting control has gone. Even better, there is now just one engine control in place of the previous three. It's pretty clever, with an H-shaped grill enabling it to act as both the fuel condition lever and a combined power and propeller pitch control. According to Stéphane Jacques, on the first flight you'll be sceptical; on the second, you know you'll know to use it; by the third, you will have adopted it fully. There is, of course, a manual fuel override control in case of an unlikely failure of the PT6's fuel control unit.

Engine starting is simplified thanks to a starter, which cuts out automatically and becomes a generator. The pilot now just has to check there is enough electric power for the start, use the single engine lever to turn on the fuel at 13% Ng and monitor ITT, which should not exceed 870°. With a warm engine, I recorded a peak of 734°C. With 226usg of fuel on board, or 856 litres out of the 1,086 litre capacity, it also meant that we were not particularly light.

Stéphane Jacques then reminded me of two speeds to keep in mind: 85 KIAS for rotation and final approach, and 120 KIAS for the climb, best glide and holding. With these speeds, you can do anything, he said!

There's also another reason not to worry. The pilot no longer needs to think about pressurisation. The system sets itself based on the field elevation of the destination set in the FMS flight plan. Simplicity itself!

### Performance and price

Our flight began with a climb to FL310 at Vy or 124 KIAS, monitoring power to maintain 100% torque at all times. Starting from Tarbes, which is at 1,260ft, we passed FL70 after three minutes, then FL100 a minute-and-a-half later, and reached FL200 after 9min 15sec, still with 100% torque. From FL220, power started to decline gradually and we finally reached FL310 in 15min 45sec with a maximum torque of 89%. This was a remarkable result, even if we cheated a bit with a head start at take-off. Starting from sea level at gross weight, the POH gives a time 18min 45sec to FL310 in ISA temperatures, a 4% improvement compared to the TBM 850, and 21min 45sec in ISA + 20°, which is a significant 16% improvement. Fuel burn averages 60usg per flight hour. With a 6psi pressure differential, our cabin altitude was 9,800ft at FL310.

Next, I wanted to check the maximum cruise speed at the certified ceiling of FL310. With 91% torque set (you gain a little power with speed from the ram effect), I recorded 325 KTAS with a fuel flow of 58.3usg. That's 7% faster than a TBM 850. At the recommended power setting of 85% torque, we saw 316 KTAS for a consumption of just under 56usg per hour, still 7% better than the 850.

Finally, I set long range power of 50% torque, and saw a speed of 260 KTAS for 38usg per hour. At this setting, we could have flown for five hours before running out of fuel. In still air you can therefore now fly from Reykjavik in Iceland to Goose Bay in Canada non-stop, and land with a 1:20 fuel reserve. That opens up some interesting possibilities!

Whether it's a coincidence or not, the performance increase is matched by a 6% price increase. The TBM 900 costs \$3.71m compared to \$3.5m for the 850. And the 850 is no longer a choice; by the time you read this, the TBM 900 will be Socata's only model.

We descended gently down to FL290, the best level to get the promised speed of 330 KTAS. Thanks to the torque limiter, you no longer need to monitor the over-torque warning in descents. Once level, with the maximum torque of 96%, I got 328 KTAS. Unusually, the weather conditions were precisely ISA. Stéphane Mayer, President and CEO of Daher-Socata, had told me excitedly about getting 331 KTAS. I will put the insignificant difference down to me being a little heavier than Stéphane!

We then carried out an emergency descent, which would be necessary in the event of a pressurisation

failure or a fire. To check the chances of survival, I asked Stéphane Jacques to put on his emergency oxygen mask: it took him less than 10 seconds. Once the masks are on, just pull the power lever all the way back, roll sharply to one side and let the nose drop until the speed reaches the Vmo of 266 KIAS. The result is an impressive 8,000fpm descent, and we are back in breathable air within two minutes.

On a previous flight with Nicolas Chabbert in TBM 850 Elite, he showed me how this very fast aircraft could fly comfortably at just 80 KIAS, even in 30° turns. I was happy with slow flight, but Stéphane Jacques suggested we try some stalls. At climb power, pulling the nose up to 25° and working a little with the rudder and ailerons to keep the wings level and the ball centred, we stalled at just 61 KIAS – helped by the slipstream effect of the engine. At idle power, clean, the stall came at 78 KIAS. In landing configuration, once again the stall came at 61 KIAS. There was no drama to the stalls, and the aircraft resumes normal flight if you release the controls.

I also wanted to check the efficiency of the torque limiter, gradually pushing the power lever forward at low altitude. Power rose to 108%, and no further. Power above 100% might seem surprising, but it is allowed because this powerful turboprop is de-rated from 1,825hp down to just 850hp, and the special alloys used in its turbine blades will withstand high temperatures.

Before returning to Tarbes we flew some lazy eights, just for fun! On this fine winter's day there was a strong contrast between the welcoming immensity of the deep blue sky and the sharp white teeth of the Pyrenees, each alternately filling the screen as we played. Finally, I carried out a couple of reasonable landings with go-arounds. That allowed me to confirm that the approach was simple if you set power to 18% torque and leave it there, without worrying too much about the speed, which varies between 85 and 90 KIAS. If you touch the power in

an effort to be more precise, you will end up chasing the airspeed indicator. The first landing was a little firm as I flared slightly high, but not too bad. The go-around was easy, despite the torque effect one might expect from the 850hp.

Waiting for us on the ramp at Tarbes were Nicolas Chabbert and my German friend Dr Birgit Hutz, the President of the European Mooney Pilots and Owners Association (EMPOA). Nicolas had wanted her to be part of this very special day. It took quite a while to come down to earth after the flight, and there was so much to talk about. As we chatted, Stéphane Jacques explained the philosophy behind the project: "Every irritant that could be removed... well, we've removed it!"

I was already a TBM enthusiast, so to be objective I will leave the last words to Birgit, the pilot-owner of a Mooney Ovation2 who sent me this email once she arrived back in Germany

"Thursday was a great day for me, I am so happy I could fly this fantastic aeroplane. It was the first turbine I've flown, as well as being the fastest and highest I've ever flown. You can feel its power and performance. I was astonished how easy and how much fun it is to fly. It combines both a fast aeroplane to get from A to B, and an aeroplane that you can have fun with, and because it is 'handy' so you can play with it in the air. It also has such an ergonomic design. And besides its performance, it's fun, it handles beautifully and it looks great inside and out. I wish this TBM a lot of success!"

What can you add to that? ■

## TECH SPEC

### TBM 900



#### DIMENSIONS

Wingspan..... 42ft 1in (12.83m)  
Length..... 35ft 2in (10.74m)  
Height..... 14ft 3in (4.36m)

#### WEIGHTS & LOADING

mtow..... 7,394lb (3,354kg)  
Empty weight..... 4,623lb (2,097kg)

#### PERFORMANCE

Max cruise speed (28,000ft)..... 330kt (mph)  
Time to climb to 31,000ft (at max) 18min 45sec  
Max range (45min reserve)..... 1,730nm

#### ENGINE

Pratt & Whitney PT6A-66D 850shp

#### SEATING

6

#### PRICE

\$3.71m

#### CONTACT DETAILS

[www.tbm.aero](http://www.tbm.aero)

Surface approx. (cm²) : 3055



Surface approx. (cm<sup>2</sup>) : 3055





Surface approx. (cm²) : 3055



Winglets add dihedral and allow full power to be used on take-off, unlike the TBM 850 which was physically limited to 700shp



Two-part gear doors are one result of the comprehensive drag-reduction programme

Surface approx. (cm²) : 3055



Better seats and a quieter cabin than the 850 mean happier passengers!



Surface approx. (cm²) : 3055





## Daher-Socata introduces new TBM 900

Daher-Socata has unveiled the latest version of its single-engine line, the TBM 900. Three years, 160,000 research and development hours, and 200 hours of flight testing have been invested in the aircraft, which compared to its TBM 850 predecessor offers improved efficiency, improved cockpit and cabin environments, and enhanced performance without increased fuel consumption or more engine power.

The new model features 26 modifications and improvements over the TBM 850. They include: addition of winglets, a vertical fin strake and a new tailcone; a five-blade composite propeller and redesigned spinner; nose-to-firewall redesign featuring a banana-shaped air intake for improved engine airflow, carbon fibre cowlings and new exhaust stacks; new control yokes and a restyled cockpit for increased visibility and easier access to secondary system controls; single-control throttle operation with a new torque limiter that enables the use of the full 850shp at takeoff; revised electrical system with 300amp starter-generator that allows new avionics and electronic devices to be installed; new-generation 100amp stand-by alternator that provides electrical input in case of power supply loss; and a redesigned cabin layout and seats for



greater passenger comfort, lower noise levels; and an automated pressurisation system.

The TBM 900 has an increased maximum cruising speed of 330kt at 28,000ft, and reduced fuel consumption that extends its maximum range to 1,730nm with five passengers. By using all the available engine power at takeoff, ground roll is reduced – even in hot-and-high conditions – while improved climb rate enables it to reach its 31,000ft service ceiling in 18min 45sec. Customer deliveries are scheduled to begin at the end of March.

TURBOPROP KATE SARSFIELD LONDON

## Daher-Socata continues TBM evolution with -900 unveiling

French airframer reveals latest version of 25-year-old high-speed turboprop single design

**D**aher-Socata has turned up the heat in the single-engined turboprop market, with the unveiling of its TBM 900.

First deliveries of the aircraft – the latest evolution of the 25-year-old TBM design – were made to three customers in the USA and Europe on 20 March.

The TBM 900 replaces the TBM 850, which was introduced in 2006 as a revamped and re-engined version of the original TBM 700 series. Daher-Socata airplane business unit senior vice-president Nicolas Chabbert says it has delivered 662 TBMs in total – 324 700s and 338 850s.

He says the company had been looking to improve the 850 prior to its acquisition in 2009 by French aerostructures manufacturer Daher.

Development of the TBM 900 has been kept firmly under wraps, however. Flight testing of the technology for the new variant began in late 2010 from its Tarbes headquarters using a modified TBM 700 test aircraft.

The second and third test aircraft were manufactured from scratch, however. In total the trio have flown 215h, culminating in US and European certification in December 2014.

The \$3.7 million TBM 900 retains considerable commonality



The TBM 900 includes a number of aerodynamic modifications

with its predecessor, including the Pratt & Whitney Canada PT6A-66D powerplant. However, it offers improved efficiency and performance thanks to aerodynamic modifications including winglets, a vertical tail-fin strake and a new tail cone.

Top cruise speed is increased by 10kt (19km/h) to 330kt at 28,000ft (8,530m) and maximum range is extended by more than 300nm (560km) to 1,730nm thanks to a reduction in fuel consumption to 140 litres per hour.

Single-control throttle operation and a new torque limiter enable the use of full power – 850hp (634kW) – at take-off, reducing ground roll even in hot-and-high conditions.

The TBM 900 has a new five-blade composite propeller and redesigned spinner. It has also

undergone a nose-to-finwall redesign to improve engine airflow circulation. The cockpit gets a new control yoke and centre pedestal. The display panel has been redesigned for increased visibility and interaction with secondary system controls.

Chabbert acknowledges the turboprop sector has been hit by the downturn. Annual deliveries of the TBM 850 fell from a peak of 60 aircraft in 2008 to 36 the following year. "The market is shifting. Last year we delivered 40 aircraft and we have 40 orders already for the TBM 900," he says.

Demand for the aircraft is expected to come from existing TBM owners, operators of other single-engined turboprop types, high-performance piston twins and singles, and very light and entry level jets. ■

# TBM 900 Revealed



*This pair of Daher-Socata TBM 900s are understood to be F WWRE and F WWRJ Daher-Socata*

Daher Socata recently revealed the new TBM 900 single engine turboprop after a three year programme involving 160 000 research and development hours and 200 hours of flight testing. Compared to the TBM 850 the new model features 26 modifications and improvements. The most noticeable is the

addition of winglets and a vertical tailfin strake and a new five blade composite propeller and redesigned spinner slightly increasing the wingspan and fuselage length compared with the earlier model. Other external changes include a new tailcone a nose to firewall redesign to improve engine airflow circulation

a banana shaped air intake carbon fibre cowlings and new exhaust stacks. Inside the cockpit has been restyled for improved visibility and easier access to secondary system controls while the cabin has a new layout with more comfortable seats lower noise levels and an automated pressurisation system. A revised electrical system with a 300 amp starter generator enables new avionics and electronic devices to be installed.

The TBM 900 has an increased maximum cruising speed of 330kts (611km/h) at 28 000ft (8 534m) and reduced fuel consumption extends its maximum range to 1 730nm (3 204km) with five passengers. Customer deliveries were scheduled to begin at the end of March by when at least 14 aircraft had been built or were being assembled at the company's factory at Tarbes. The majority of the 14 have US civil registrations reserved. *Mike Jerram*

# Daher-Socata unveils faster and quieter TBM

by Chad Trautvetter

Daher-Socata unveiled the latest iteration of its turboprop single, the TBM 900, at company headquarters in Tarbes, France, on March 12. Derived from the TBM 850, itself a variant of the original TBM 700, the new version offers better efficiency and performance without an increase in fuel consumption or engine power, according to the company. The aircraft received both FAA and EASA approval before it was publicly unveiled.

Winglets, a new tailcone and a five-blade composite propeller with redesigned spinner distinguish the TBM 900 externally from its predecessors. From the nose to the firewall the aircraft has been redesigned to improve engine airflow circulation, through use of a banana-shaped air intake, carbon-fiber cowlings and new exhaust stacks.

The new aircraft retains the Pratt & Whitney Canada PT6A-66D engine found on the TBM 850, as well as its Garmin G1000 avionics suite. Daher-Socata said customers have been happy with the 850's Garmin glass cockpit, so it decided to retain the system in the 900. However, the cockpit does include several "enhanced human-machine interface features," including an ergonomic control yoke and a revised cockpit center pedestal that incorporates single-lever power control.

Other new features include a revamped electrical system with a 300-amp starter generator, which provides a semi-automatic start-up, and 100-amp standby alternator. In addition, the TBM 900 has lower cabin noise lev-

els than its predecessor, an automated pressurization system and new-design seats.

Compared with its predecessor, the TBM 900 has a top cruise speed that is 10 knots faster, 330 knots at FL280, and maximum range with five passengers and a 45-minute reserve has been extended to 1,730 nm from 1,585 nm thanks to reduced fuel consumption of 37 gallons per hour.

Since the TBM 900 can use all of the available 850 shp of engine power on takeoff, compared with 700 shp on the TBM 850, the aircraft's sea-level ground roll is reduced to 2,380 feet, down by 460 feet. Meanwhile, an improved climb rate takes the new model to its 31,000-foot ceiling in 18 minutes 45 seconds, about two minutes more quickly than the TBM 850.

The TBM 900 was developed on the quiet during a three-year development program that included 200 hours of flight-testing. In fact, it was so secretive that customers were told of the new aircraft only three weeks before the official March 12 unveiling, and those who placed orders did so without seeing it. Despite giving only basic performance data and the selling price (\$3.7 million), the company took orders for 40 TBM 900s before the aircraft was publicly unveiled.

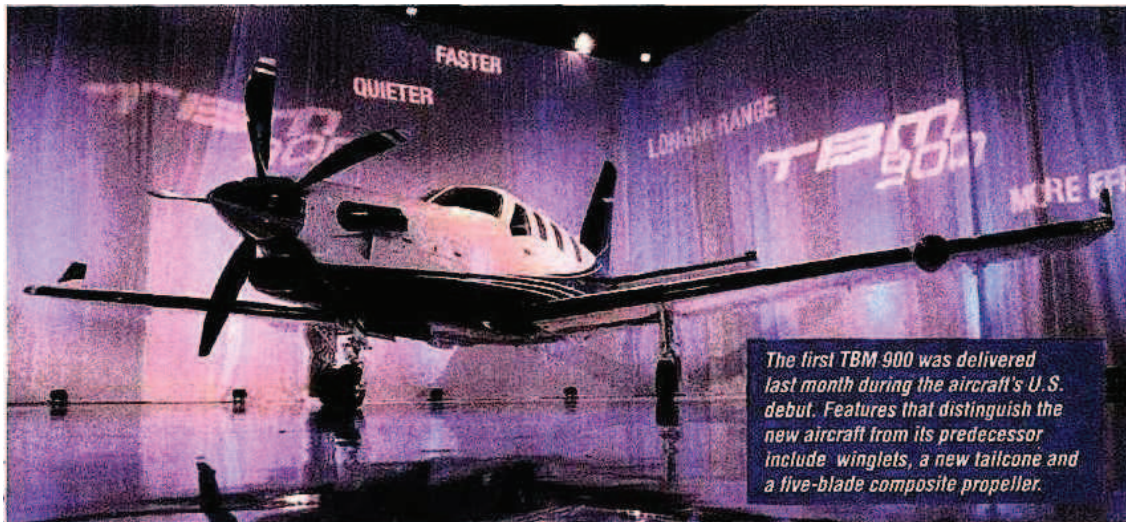
First delivery to launch customer Larry Glazer—who owns Rochester, N.Y.-based commercial/industrial real-estate developer Buckingham Properties and is president of the TBM Owners and Pilots Association—took place on March 20 dur-

ing the TBM 900's formal U.S. debut at an event in Polk City, Fla. Glazer has logged more than 5,000 hours in TBMs over the past 20 years, starting with TBM 700 S/N 9 in 1994 and then upgrading to a non-glass cockpit TBM 850 in 2008. He had already been in contact with Daher-Socata to upgrade to a G1000-equipped TBM 850, so Glazer didn't hesitate to say yes when Daher-Socata president and CEO Stéphane Mayer called him to ask if he wanted to be first in line for the new model.

Glazer's new aircraft (S/N 1003) was one of four TBM 900s displayed at the U.S. unveiling at Kermit Weeks's Fantasy of Flight museum. The other three were demonstration aircraft that will be available for viewing and demo flights at the Sun 'n' Fun Fly-In early this month in Lakeland, Fla.

During the U.S. event, Patrick Daher, CEO of Socata parent company Daher, told attendees. "The TBM 900 benefits from the resources of Daher and some \$30 million of investment. With the TBM 900, Daher is now a true aircraft manufacturer with full capabilities to manage complex programs, from design and development to production, delivery and after-sales support."

Daher also revealed that Daher-Socata is "looking to acquire additional manufacturing capabilities in the U.S." Asked by AIN to elaborate further, he said that the company wants to buy an existing aerospace structures company within the next year or so. Daher noted, "All options are on the table," adding that the only constraint at this point is that the acquisition "would need to be a good fit for Daher-Socata." □



*Like the TBM 850, the TBM 900 includes the popular G1000 avionics suite from Garmin. It will, however, feature several human-machine interface improvements from the 850.*