

# PRESERVING the MESSERSCHMITT

At the Airbus Defence and Space facility at Manching, southern Bavaria, the Flugmuseum Messerschmitt houses an outstanding collection of aircraft relating to Willy Messerschmitt's achievements as an aeronautical engineer

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**S**ide-by-side, classic fighter designs such as the Messerschmitt Bf 109 and Me 262 co-exist at Manching with Tornados and Eurofighters. There could be no better visual representation of the technological heritage of the company that has, in the meantime, become part of the Airbus Group.

The intention of the Flugmuseum Messerschmitt is to remember one of Germany's most outstanding aviation engineers, Willy Messerschmitt. Its location at Airbus Defence and Space's Manching factory airfield — just a stone's throw from the final assembly line for the Luftwaffe's Eurofighter EF2000s — is no coincidence. The modern combat jets are built by the military branch of the Airbus Group, which continues the heritage of the post-war aircraft manufacturing and design company Messerschmitt-Bölkow-Blohm (MBB). The Flugmuseum, however, is not only an Airbus activity. It is a collaborative venture between Germany's biggest aircraft manufacturer and the Messerschmitt Stiftung (Messerschmitt Foundation).

The roots of the foundation, which became Germany's largest private monument conservation trust, were planted in 1969 by Willy Messerschmitt himself. A decade later, his personal shares in MBB went towards it. The organisation's intention is to preserve Messerschmitt's own 'technical works', but it also helps care for and maintain German art and cultural monuments,

both in Germany and abroad. It also supports young aeronautical engineering students.

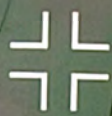
From the outset, the Stiftung has made possible the restoration of many superb monuments. The most famous is probably Schloss Meseburg, a very fine Baroque castle in the state of Brandenburg, north of Berlin. Leased to the German government for the symbolic sum of €1 after renovation was completed, it has served since 2007 as the Federal Chancellor's country retreat. Another well-known beneficiary is the Belvedere auf dem Klausberg, a delightful building near the Sanssouci Palace in Potsdam, but there are also dozens of locations in the Tyrol, and even further away — for instance, in Sofia or St Petersburg — which have profited from the foundation's grants.

That role might surprise, as Willy Messerschmitt's name is, naturally, more closely linked to legendary aircraft designs and his role as an aviation pioneer. However, apart from his technical background, an interest in fine arts played a major part in his life. Looking closely at his aircraft designs, one might even have the impression that this interest contributed directly to the classic lines and artistic forms of many of his creations. In a time long before computational fluid dynamics and computer-based optimisation algorithms became part of an aeronautical engineer's daily life, a thorough understanding of basic aerodynamic and construction principles did the job.

**ABOVE: The superb lines of the new-build Me 262A/B-1c, captured air-to-air en route to the AirPower show in Austria.**

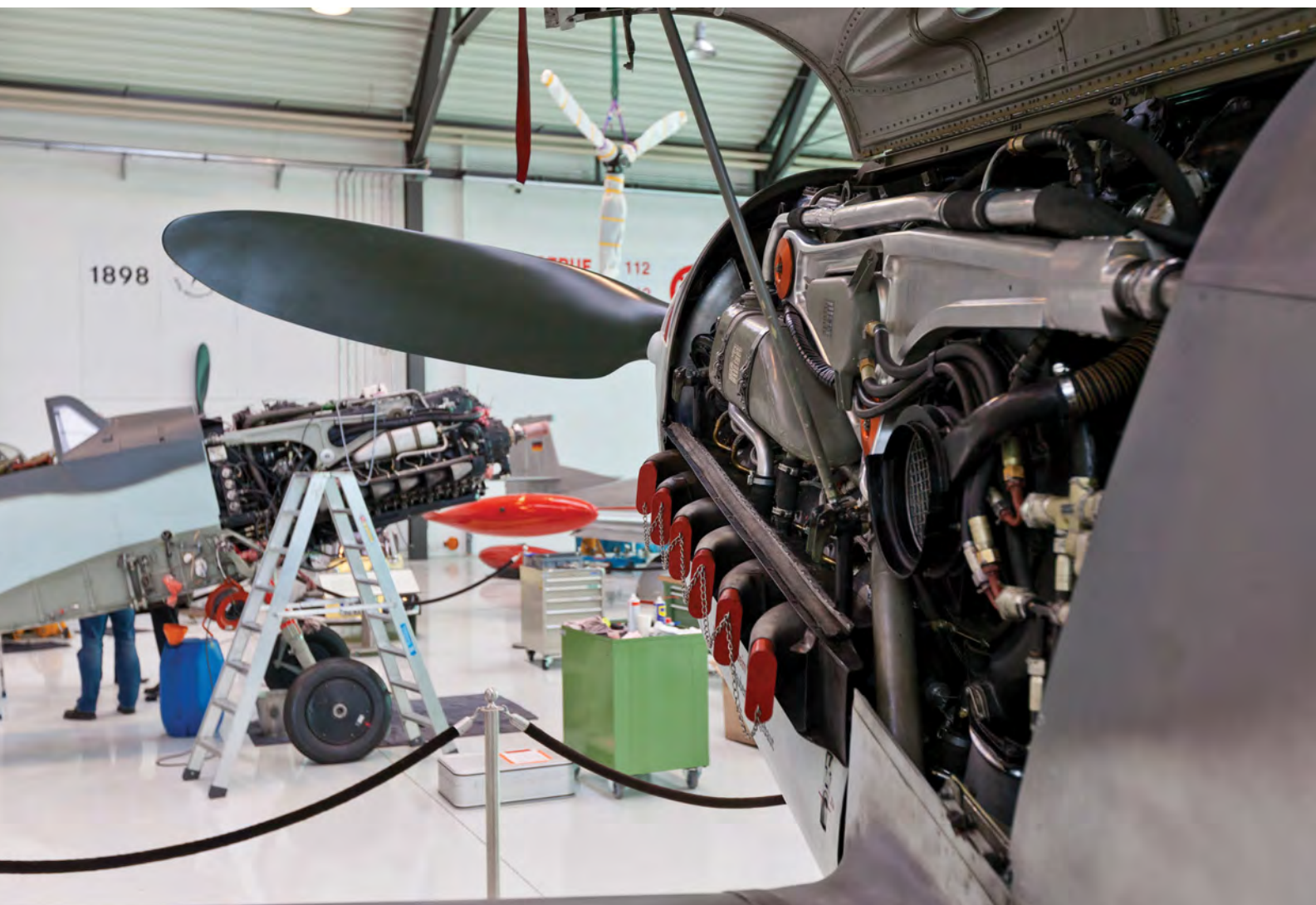
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**ABOVE:** Maintenance going on in the museum, focusing here on the Daimler-Benz DB605 engines of the Bf 109s.

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During 1998 a particular focus was placed on the aviation heritage of Willy Messerschmitt. To celebrate his lifetime of achievements, the Flugmuseum Messerschmitt was inaugurated on what would have been his 100th birthday, 26 June 1998. One goal was to preserve some of his most important designs in airworthy condition. As a partner for this venture was selected Dasa, MBB's successor company, and part of the Daimler-Benz — later DaimlerChrysler — group.

1998 foundation of DaimlerChrysler through the divestment of its MBB shares. Having the know-how of the engineers and technicians on hand, as well as the ability to use the airfield's infrastructure, made the huge test and trials site in Bavaria the perfect base for this co-operative venture.

Dasa was merged into EADS during 2000. Since 2014, meanwhile, EADS has been known as the Airbus Group. It should be noted that the Flugmuseum forms only one part of the firm's efforts to highlight and

museum's hangar. Airbus at Manching is responsible for restoring and maintaining them, as well as taking care of flight operations. One aircraft, the last surviving Helwan HA-300 delta fighter developed for — but never operated by — the Egyptian Air Force, another Messerschmitt design, is a static exhibit only, having moved in from the Deutsches Museum's Flugwerft Schleissheim at Oberschleissheim.

The common goal of the Messerschmitt Stiftung and Airbus is to operate the airworthy heritage aircraft as safely and for as long as possible, but still to present them in front of the widest audience. This and the way in which the fleet is not operated commercially, but instead used to serve the company's and the foundation's interests, explains most of its airshow appearances. The aircraft are displayed at big shows around Europe to entertain large crowds and to support company business. But, every once in a while, the Bf 108, Bf 109 or Me 262 have been seen dazzling a small event at a rural airfield in Bavaria, most often linked to Willy Messerschmitt's former places of activity.

***'The museum's aircraft are not used commercially, but to serve Airbus and the Messerschmitt Foundation's interests'***

Given the museum's aeronautical theme, the tie-up with Dasa was ideal. In the 1990s, not only was the company the direct heir to Messerschmitt's history, but more significantly it could provide technical assistance and support to the historic aircraft that were to be based at Manching. It also contributed to the

perpetuate the history of its ancestor companies. This involves a wide range of corporate heritage activities, backing being provided to several other aircraft and projects with Airbus connections.

With a few exceptions the aircraft in the Flugmuseum belong to the Messerschmitt Stiftung, as does the



Though the museum itself remains in the same Manching hangar nearly 20 years after its establishment, the collection has grown. Entering the building, an impressive sight greets the eyes. Three Messerschmitt Bf 109s of different variants, a Bf 108 Taifun, the M17 reproduction, the Me 163 glider replica, a new-build Me 262 and a Spanish-built Hispano Aviación HA-200 Saeta completely fill the place.

Calling it an exhibition hall would be far from accurate, as can be seen from the drip trays placed underneath the aircraft and the technicians working around them. The Flugmuseum Messerschmitt is extremely proud that it can present most of its exhibits in flight, but keeping the collection in airworthy

condition is, it could go without saying, a huge undertaking. The fleet is large, and the aircraft highly diverse, from a wooden light aeroplane to early jets.

Combine this with the historic nature of the airframes, the fact that they are not built to common standards, and spare parts that aren't exactly abundant, and you get the idea. This level of diversity and the fairly small size of the team of specialists make caring for the fleet a difficult task. As such, it is rare for all of the aeroplanes to be in airworthy condition, and some have not flown for quite a few years. Increasing the efficiency and safety of the aircraft is always a significant topic, all the while considering the need to remain true to the originals while employing more

modern standards when practical. This is the driver behind activities in numerous areas, such as the cockpit layouts of the three different versions of the Bf 109.

Due to the nature of the museum's aircraft, pilots are specially selected based on their experience. Some have thousands of flight hours in the logbook and a graduation certificate from a world-renowned test pilot school on the office wall, but a test pilot qualification is not an essential requirement, although the Flugmuseum is naturally happy that many Manching-based Airbus test pilots — right up to chief test pilot level — fly its aeroplanes.

For the propeller-driven machines, extensive taildragger experience is a must, as is the ability to stay

**ABOVE:** One of the fleet's founding aircraft, Bf 109G-6 D-FMBB, goes through its paces at the ILA Berlin Air Show. It has not flown since 2007.

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**ABOVE LEFT:** The original Bristol Cherub engine on the M17 replica.

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**BELOW:** The Me 262 on the ramp outside the Willy Messerschmitt Halle at Manching.

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**ABOVE:** Bf 109G-10 D-FDME made few flights as 'Yellow 3' during 2011 before suffering engine trouble. Thankfully, Klaus Plasa was able to make a successful deadstick landing.

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**RIGHT:** The view from the back seat of the HA-200.

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**BELOW:** Messerschmitt designed the HA-200 Saeta for Hispano Aviación. Here, Wolfgang Schirdewahn is flying D-IWMS, with Prof Gero Madelung in the back seat.

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proficient using other, similar types. The collection's policy of keeping its fleet airworthy inevitably means a compromise between preservation and flying hours. On the one hand, operating these aircraft requires proficiency that can only be obtained by flying them for a reasonable

number of hours per pilot each year. On the other, available flight hours on the airframes are limited.

The self-imposed maximum of roughly 20 to 30 hours per year restricts public appearances by the aircraft to a minimum, especially when it comes to airshows that

require long ferry flights. While it would be nice for the team to be able to display at more locations further afield, the transfer flights add to general wear and tear but offer little value in pilot proficiency.

The importance placed on preserving the aircraft is further apparent from the nature of their flying demonstrations. The routines are fairly gentle, remaining well within each airframe's g limits and keeping engine power settings down to a reasonable figure of about 70 per cent during display flying.

This careful approach can be observed every time an aircraft is moved out of the hangar at Manching and readied to fly. After meticulous ground checks the previous day, each flight is planned to the very last detail. The pilots don't just jump in and fly: they usually prefer to sit in the cockpit and get acquainted and re-familiarised with the layout for a while, before the actual start-up procedure begins.



It cannot be denied that the museum has had some setbacks of late, especially regarding flight operations with its Bf 109s. Though it has long held the ambition to be able to fly a formation of two of the Daimler-Benz DB605-powered Bf 109s — all converted from Hispano-built, Rolls-Royce Merlin-engined HA-1112-M1L Buchóns — very seldom have two been airworthy at the same time.

The most popular of the trio is Bf 109G-4 D-FWME, coded 'Red 7'. It has been seen frequently at airshows

around Europe, and made the trip across the Channel in 2015 to visit the Biggin Hill Festival of Flight, Flying Legends at Duxford and the Royal International Air Tattoo at Fairford (see *Aeroplane* October 2015). Unfortunately, though, it is also the aircraft most often hit by bad luck. The airframe has had quite a record of mishaps in the past few years, fortunately only resulting in distorted skins, broken components or, in the worst case, a shock-loaded DB605. The most recent was a take-off incident on 28 August this year. Sometimes, the Bf 109's tricky handling characteristics cannot be compensated for by even the best, most experienced test pilots.

'Red 7' does not belong to the Messerschmitt Stiftung, but was bought by the then EADS company in 2006 from its former private owners. The aircraft suffered a landing accident in 2005, and the owners were unable to rebuild it with their own resources and donations. The 'Gustav' was considered to be an especially splendid specimen, in particular its DB605 engine.

In order to keep the Bf 109G-4 in Germany, it was taken to Manching on condition that it be made airworthy again. This happened at the end of 2007, around the time when Bf 109G-6 D-FMBB — nicknamed 'die Beule' (the bump) due to the rather ungainly fairings for the machine gun in front of the cockpit



**LEFT: Airbus Helicopters chief test pilot Volker Bau talks to the groundcrew after one of his first flights in the Bf 109G-4.**

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— went into a period of major engine maintenance after its participation in the filming of the movie 'Valkyrie' near Berlin, starring Tom Cruise.

this 'Gustav' as well, when its landing gear collapsed on touchdown after a flight demonstration during ILA 2008 at Berlin Schönefeld. A

## *'Keeping the fleet airworthy inevitably means a compromise between preservation and flying hours'*

The third example in the fleet, Bf 109G-10 D-FDME, was airworthy at that time. It is considered to be the easiest of the 109s to fly due to its higher tailwheel, and was the one selected for pilot training. However, a year later ill luck struck

full refurbishment was performed thereafter, including a repaint that transformed the former 'Black 2' into 'Yellow 3'. The G-10 was airborne again in 2011, but unfortunately an engine failure in mid-year forced pilot Klaus Plasa to make a deadstick

**BELOW: The delightful M17 in flight over Bavaria's countryside.**

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**ABOVE:** Marc Frattini gets airborne in the HA-200 during ILA 2014 at Berlin Brandenburg Airport.  
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landing at Manching, and it has not flown since.

With the small team of specialists focusing on 'Red 7', progress on the other two Bf 109s has understandably slowed in recent years. Even keeping one aircraft airworthy is so time-consuming that few resources are left to work on the other machines.

However, advances are being made, though they may not always be visible to the outside observer visiting the Manching hangar. Cabling inside the airframes is being completely renewed and brought up to modern standards, while the wings have been totally reworked using jigs from an external company.

The roots of Germany's best-known fighter can, of course, be found in the Bf 108. Powered by an original Argus As 10C, the Messerschmitt Stiftung's Taifun is an original Bf 108B-1 whose history can be traced back to 1938 (see *Aeroplane* May 2016). It was bought from a private Swiss owner in the 1990s. The fuselage

**LEFT:** The striking shape of the Me 163 glider replica in free flight is currently denied following structural inspections. DR ANDREAS ZEITLER

**BELOW:** Wolfgang Schirdewahn is among the Flugmuseum's pilots. He is an Empire Test Pilots' School graduate who flies for Airbus Defence and Space.  
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is now undergoing an extensive restoration, and in the cockpit it is being given modern navigation and communication equipment, while preserving the original appearance.

Stepping even further back in time to 1924-25, the M17 was Messerschmitt's first powered aircraft design. According to his ethos it was light, safe and economical. Its low empty weight of 198kg is especially remarkable when considering the possible equal mass of the pilot and the passenger who can fly in it. The type's most famous feat occurred in 1926: the first crossing of the central Alps by a light aeroplane. That flight from Bamberg to Rome (undertaken in several stages) took 14 hours and attained a maximum altitude of 4,500m (14,765ft). Just one original M17 remains, a static exhibit with the Deutsches Museum in Munich. The aircraft at Manching is the sole airworthy replica, newly built by Bitz Flugzeugbau in 2004. However, its engine is an original Bristol Cherub.



Another replica is the eye-catching Me 163 Komet. This differs from the other aircraft in the collection, given that the concept for this rocket-propelled interceptor was not originally designed by Willy Messerschmitt but, rather, aerodynamicist Alexander Lippisch. The stunning red Komet hanging from the roof is an unpowered glider. It demonstrated its impressive flying characteristics at several airshows, being released from a Dornier Do 27 tug aircraft. However, it is not at present considered airworthy



## Flugmuseum Messerschmitt fleet

| Aircraft                    | Registration | Owner   | Notes   |
|-----------------------------|--------------|---|---|
| Bf 108B-1                   | D-ESBH       | Messerschmitt Stiftung                              |   |
| Bf 109G-4                   | D-FWME       | Airbus Defence and Space                            | Converted from HA-1112-M1L Buchón C.4K-75         |
| Bf 109G-6                   | D-FMBB       | Messerschmitt Stiftung                              | Converted from HA-1112-M1L Buchón C.4K-87         |
| Bf 109G-10                  | D-FDME       | Airbus Defence and Space/<br>Messerschmitt Stiftung | Converted from HA-1112-M1L Buchón C.4K-141/D-FEHD |
| HA-200 Saeta                | D-IWMS       | Messerschmitt Stiftung                              |   |
| M17 replica                 | D-ERTA       | Messerschmitt Stiftung                              |   |
| Me 163B glider reproduction | D-1636       | Airbus Defence and Space                            |   |
| Me 262A/B-1c reproduction   | D-IMTT       | Messerschmitt Stiftung                              |   |

**ABOVE: Bf 108B-1 D-ESBH sports a generic wartime Luftwaffe scheme.**

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**BELOW: The General Electric CJ610 engines of the reproduction Me 262 have provided good, reliable performance.**

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**ABOVE:** The ILA Berlin Air Show is always a major showcase for the Flugmuseum's fleet, as here in 2010 when both the Bf 109G-4 and Me 262 appeared.

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as a result of the findings from an inspection of its wooden structure.

Perhaps the Messerschmitt Stiftung's greatest feat in the aviation world was its involvement in the

new-build Me 262 project. Given that the jet fighter was considered by Messerschmitt himself to be his most important design, no wonder the foundation supported so strongly

## VISITING THE MUSEUM

The Flugmuseum Messerschmitt is located inside the secure area on the Airbus Defence and Space site at Manching near Munich. Access is thus limited, and visits are only possible on one Friday afternoon per month. They require prior reservation, which is preferably done via [www.flugmuseum-messerschmitt.de](http://www.flugmuseum-messerschmitt.de).

the effort by first Classic Fighter Industries in collaboration with Herb Tischler's Texas Airplane Factory, and then Bob Hammer and his Legend Flyers team at Paine Field in Everett, Washington, to reproduce the world's first operational jet. The small production run was permitted to use Werknummern (construction numbers) following on directly from the originals.

Following the maiden flight of the initial new Me 262 in December 2002, the Manching-based example D-IMTT — 'MTT' standing for Messerschmitt — took to the air during 2005 and was air-freighted across the Atlantic the following spring, becoming the sole airworthy 262 in Europe. As things stand, it is displayed as a single-seat A-1 version, but provision was made to reconfigure it as a two-seat B-1 as well.

For the pilots chosen to fly these Messerschmitt designs, every opportunity to take to the air in them is an outstanding experience, affording the chance to appreciate in a hands-on way the progress aviation has achieved in the past 90 years. But watching from the ground is itself a pleasure, for it is a rare treat to see and hear these aircraft in action, preserving the Messerschmitt legacy. **A**

**BELOW:** It was good to see the Bf 109G-4 'Red 7' in Britain for a short tour in 2015. Such visits are rare due to the need to preserve precious flying hours.

RICHARD PAVER

