UTED 1968 INTERNATIONAL

ISSUE 4• 2025

AIRCRAFT MAINTENANCE MAGAZINE

BUILDING THE FUTURE OF AVIATION MAINTENANCE: **UTED'S GLOBAL VISION 2025**

COMPETENCY-BASED TRAINING AND ASSESSMENT (CBTA) APPROACH IN AIRCRAFT MAINTENANCE TECHNICIAN TRAINING

PSYCHOLOGICAL SAFETY AMONG AIRCRAFT MAINTENANCE TECHNICIANS: **A CATALYST FOR SAFETY AND PERFORMANCE**

SAFE FLIGHTS BEGIN WITH US

Dear Colleagues and Esteemed Readers,

As we move into the second quarter of 2025, the global aircraft maintenance, repair, and overhaul (MRO) industry finds itself in a dynamic phase of recovery and transformation. Increasing flight demand, the rejuvenation of aircraft fleets, the adoption of next-generation technologies, and the pressing need for skilled personnel are driving an industry-wide evolution focused on quality, agility, and sustainability.

At UTED, we are proud to be at the heart of this transformation.

EAMTC's 82nd Meeting: Advancing the Future of Training

Earlier this quarter, UTED participated in the 82nd meeting of the European Aviation Maintenance Training Committee (EAMTC). Discussions centered around digital transformation in training, hybrid curriculums, and the integration of AI-supported learning environments all reinforcing that the future of maintenance training is becoming increasingly personalized, flexible, and technologically driven.

We shared our insights on how Turkish training institutions and future technicians can adapt to these changes. Additionally, the newly announced appointments within the EAMTC Executive Committee mark a renewed energy and collaborative potential for all members of the aviation training community.

MRO Middle East & MRO Americas 2025: Representing Turkish Excellence

UTED proudly represented Turkish Aviation Maintenance Engineers at two of the industry's most significant events this year MRO Middle East in Dubai and MRO Americas in Chicago. These platforms are more than just technology showcases; they are global hubs for knowledge exchange and professional collaboration.

Innovations such as predictive maintenance, digital twin technologies, and eco-conscious repair strategies were key highlights. UTED actively contributed by forming new partnerships and exploring initiatives that aim to enhance the capabilities of our local technicians and institutions.

WATS 2025: Aligning with Global Training Standards

At WATS 2025 (World Aviation Training Summit) held in Florida, we once again took our place among global industry leaders. The spotlight this year was on Competency-Based Training and Assessment (CBTA) and the methods necessary to prepare new-generation maintenance personnel for tomorrow's challenges.

During panel discussions, we emphasized the critical role of sustainable and skill-based training. UTED's contributions helped bring greater visibility to Türkiye's educational models and showcased the competence and potential of our aviation maintenance community.

Q2 2025 Outlook: Defining the Next Chapter of MRO

Looking ahead into this quarter and beyond, several developments will shape the future of MRO:

- **Hybrid-electric propulsion systems** are becoming more than concepts they're entering hangars and requiring new maintenance protocols.
- **Micro-credentialing** and modular learning are gaining momentum, supporting more adaptive and continuous upskilling.
- **Mentorship-based workforce integration** is resurfacing as a vital strategy to mitigate technician shortages.
- **AI-enhanced planning and AR/VR-powered simulation** are now practical tools for improving safety, accuracy, and efficiency.

Aircraft maintenance technicians are the unsung heroes of aviation. Behind every safe flight lies the meticulous work, unwavering responsibility, and silent dedication of these Professionals often working through the night, in extreme conditions, ensuring aircraft are airworthy and passengers are safe.

On the occasion of **Aircraft Maintenance Technicians Day**, we wholeheartedly honor and celebrate the hard work of every technician across Türkiye and around the world. Your knowledge, discipline, and commitment form the backbone of safe aviation operations today and they are building the foundation of the aviation sector of tomorrow.

UTED stands beside you, proud of your contribution, and committed to supporting your journey toward greater recognition, opportunity, and advancement.

Happy Aircraft Maintenance Technicians Day. You make aviation possible.

With respect and admiration,

Ömür CANİNSAN
UTED President

Contents

BUILDING THE FUTURE OF AVIATION MAINTENANCE:
UTED'S GLOBAL VISION 2025

"Connecting knowledge, shaping futures: UTED's global commitment to aviation excellence."

UTED 1968 INTERNATIONAL

AIRCRAFT MAINTENANCE MAGAZINE ISSUE 03• 2025 UTEDINTERNATIONAL@uted.org

Chairman & Managing Director
Ömür CANİNSAN

Editor-in-Chief
M.Murat BAŞTÜRK

Managing Editor
Müjgan İrem FİLİZ

Editorial & Writing Team
Ersan YÜKSEL
M.Melih BAŞDEMİR, PhD
Caner ŞENTÜRK, PhD
Nusret ERCEYLAN, PhD
M.Murat BAŞTÜRK
Deniz GÜNALTAY
Arif TUNCAL, PhD
R. Haluk KUL, PhD
N. Temuçin GÜREL
M.Berk GÜNEŞ
Olcay BAKŞİ
Batuhan ÖZCAN
Şevval ALTAN
Eray BECEREN

News Editorial Team
Şevval ALTAN
İltemir Taha BİNALİ
Mustafa Mert US
Selman ÇELİK
Melih EROĞLU
Taha Reşit KASAL
Samet AKGÜL

Address
İstanbul Cad. Üstoğlu Apt. No: 24 Kat: 5 Daire: 8
Bakırköy - İstanbul - Türkiye
Phone: +90 212 542 13 00
Mobile: +90 549 542 13 00
Fax: +90 212 542 13 71

Advertising & Communication
UTEDINTERNATIONAL@uted.org

Website
www.UTEDINTERNATIONAL.com
www.uted.org

Social Media
www.facebook.com/utedmedya
www.twitter.com/utedmedya
www.instagram.com/utedmedya
www.youtube.com/utedmedya
https://www.linkedin.com/in/uted/

To subscribe to our magazine, deposit the annual subscription fee into our bank account and send the receipt to our WhatsApp account at +90 549 542 13 00. line or info@uted.org or send us an e-mail to our e-mail address.

Uted magazine will be sent to your address every month. Please contact our association for detailed information please contact us.

Boeing Sells Digital Aviation Solutions Business to Thoma Bravo for $10.55 Billion

Boeing has reached an agreement to sell significant parts of its Digital Aviation Solutions business to the software-focused private equity firm Thoma Bravo for $10.55 billion. The deal includes well-known digital aviation assets such as Jeppesen, ForeFlight, AerData, and OzRunways. Boeing CEO Kelly Ortberg stated that this strategic move would allow the company to focus more on its core areas of expertise while strengthening its financial position. Thoma Bravo, recognized for its deep knowledge and expertise in the technology and software sectors, will ensure that Boeing's digital assets are efficiently managed. Following the sale, Boeing will retain critical digital capabilities, such as aircraft and fleet data analytics, continuing its maintenance, diagnostics, and repair services. The transaction will affect approximately 3,900 employees, and is expected to be completed by the end of 2025. This move aims to streamline Boeing's digital portfolio, ensuring uninterrupted customer support and enhancing operational efficiency.

GA Telesis SPAH Facility Gains Brazilian Certification to Expand Engine Support in Latin America

GA Telesis Engine Services has announced that its U.S.-based Specialized Procedures Aero Engine Hospital (SPAH) facility has received certification from Brazil's National Civil Aviation Authority (ANAC). This approval authorizes the facility to perform maintenance, repair, and recertification services on aircraft engines registered in Brazil. The certification marks a significant step in GA Telesis' strategy to expand its footprint in Latin America and provide regional operators with faster, localized engine support. With the new approval in place, Brazilian carriers can now access the SPAH facility's specialized services without the need to send engines overseas for lengthy turnarounds.

Gulf Air and SalamAir Sign MRO Cooperation Agreement

Gulf Air has signed a memorandum of understanding (MoU) with Oman-based low-cost carrier SalamAir to collaborate on a range of aircraft maintenance services. The agreement covers line maintenance, base maintenance, and specialized workshop support, marking a strategic step toward strengthening regional MRO capabilities. According to Gulf Air's Chief Technical Officer Mazin Saleh, the partnership represents "a significant step towards Gulf Air's vision to become a preferred provider of quality MRO services." The cooperation aims to leverage Gulf Air's technical expertise and infrastructure to support SalamAir's expanding operations, while also promoting regional synergy and resource sharing. The MoU highlights both airlines' commitment to enhancing operational reliability, optimizing maintenance costs, and building long-term, sustainable support structures within the Gulf aviation sector.

Alaska Airlines Partners with Loft Dynamics to Develop VR Pilot Training Simulator

Alaska Airlines has announced a strategic investment in Loft Dynamics to co-develop the world's first hyper-realistic, full-motion Boeing 737 virtual reality (VR) simulator. The project aims to supplement traditional pilot training with an immersive, space-efficient, and cost-effective alternative using advanced extended reality (XR) technology. The simulator will feature a motion platform, panoramic 3D visuals, and full-body tracking, allowing pilots to train complex procedures and emergency scenarios. Once approved by regulators, the systems will be deployed across Alaska's training centers. Notably, the VR simulator occupies just one-twelfth the space of conventional units and includes innovations such as virtual lesson playback and Apple Vision Pro integration. FAA certification is pending, but Alaska views this as a major step toward modernizing pilot training standards across the industry.

Flyadeal Prepares for Long-Haul Operations

Saudi Arabia's low-cost carrier flyadeal is set to expand its fleet with an order for ten Airbus A330-900 aircraft, marking its first step into wide-body operations and strengthening its international growth ambitions. Flyadeal, part of the Saudia Group, has signed a new agreement with Airbus to add ten A330-900s to its fleet. During the signing ceremony in Toulouse, Saudia Group Director General H.E. Engr. Ibrahim Al-Omar emphasized that this investment supports Saudi Arabia's Vision 2030 goal to advance the aviation sector. The new A330-900s, powered by Rolls-Royce Trent 7000 engines, will offer a non-stop range of 13,300 km and feature Airbus' award-winning Airspace cabin, enhancing the passenger experience. This expansion follows the Group's earlier order in May 2024 for 105 Airbus aircraft. With this move, flyadeal aims to strengthen its position in the Middle East's low-cost market while also establishing a stronger presence on international routes.

Canada Completes First Piloted Hydrogen-Powered Helicopter Flight

Canadian Advanced Air Mobility (CAAM) has announced a major milestone in sustainable aviation: Unither Bioélectronique successfully conducted the world's first piloted flight of a hydrogen-powered helicopter. The test, performed on March 27, 2025, at Roland-Désourdy Airport in Québec, marks both a global and Canadian first in hydrogen-powered flight history. The three-minute and sixteen-second flight, part of 'Project Proticity™' in collaboration with Robinson Helicopter Company, demonstrated the feasibility of using a proton exchange membrane (PEM) hydrogen fuel cell system for vertical take-off and landing (VTOL) operations. Test pilot Ric Webb operated a modified Robinson R44 Raven II under a Transport Canada Civil Aviation experimental permit, with approximately 90% of the flight energy derived from hydrogen.
"This achievement validates our hydrogen powertrain technology and sets the stage for integrating liquid hydrogen storage for extended-range missions," said Mikaël Cardinal, Vice President at Unither Bioélectronique
CAAM hailed the flight as a major step towards zero-emission air mobility, positioning Canada at the forefront of clean aviation innovation.

Navigating Growth: Essential Guidelines for Modern Drone Operators

As the drone industry experiences rapid growth, operators face increasing responsibilities to adapt to evolving standards and regulations. Commercial and recreational drone use has surged, leading to heightened scrutiny from aviation authorities worldwide. Drone operators must stay informed about airspace restrictions, certification requirements, and safety procedures to maintain compliance and ensure responsible flight operations. One of the key areas for operators is understanding restricted zones, particularly around airports and sensitive infrastructure. Proper pilot training, both initial and recurrent, is critical to reduce risks and enhance operational efficiency. Additionally, maintenance practices must be documented thoroughly, ensuring that drones are kept in optimal condition for flight. Insurance coverage is becoming increasingly mandatory, with many jurisdictions requiring proof of liability insurance before commercial operations can commence. As urban environments become more crowded, emphasis on public safety and privacy issues is also rising, prompting new regulatory frameworks aimed at better integrating drones into shared airspace. Proactive engagement with these evolving expectations is vital.

Hydro-Québec Modernizes Fleet with New ATR72-600 Aircraft

State-owned utility Hydro-Québec (HYD, Montréal Trudeau) is set to modernize its aging fleet with the acquisition of three ATR72-600 turboprop aircraft, phasing out its current DHC-8-300 and DHC-8-Q400 models in the coming years. The company is investing CAD 100 million (USD 70.5 million) in the purchase, with an option for a fourth aircraft. The first ATR72-600 is expected to be delivered in fall 2026, with the final unit arriving by summer 2027. "Following a thorough market review, ATR emerged as the only manufacturer capable of meeting our technical requirements particularly in terms of passenger capacity and performance on short, gravel runways," Hydro-Québec said in a statement. The company also noted that several key components, such as the PW127XT engines by Pratt & Whitney Canada and flight control systems, are produced domestically. Hydro-Québec uses its fleet to transport staff to remote locations including Saguenay (Bagotville), Abitibi, Côte-Nord, and Baie-James. According to the ch-aviation fleets module, the current fleet includes two DHC-8-300s and two DHC-8-Q400s, with an average age of 27.5 years.

January 2025: Record Passenger Demand and Growth in Cargo

The International Air Transport Association (IATA) released global passenger and cargo data for January 2025. Passenger demand increased by 10% compared to the same period last year.

Record Growth in Passenger Demand

- Passenger demand rose by 10%, while capacity increased by 7.1%.
- The passenger load factor reached 82.1%, marking a record high for January.
- International passenger demand grew by 12.4%, while domestic demand increased by 6.1%.
- The domestic load factor reached 81.2%, and the international load factor reached 82.6%.

Regional Growth

- Asia-Pacific: +16.1%
- Africa: +15%
- Middle East: +9.6%
- Europe: +7.4%
- Latin America: +7.9%
- North America: +3.4%

Air Cargo Demand Continues to Grow

In January 2025, cargo demand rose by 3.2%. International cargo demand grew by 3.6%, while capacity increased by 6.8%. Experts expect this momentum to continue throughout 2025.

Turkish Technic Signs MRO Deals with IndiGo and Air India Express

At MRO Middle East 2025, Turkish Technic secured two major MRO agreements with Indian carriers IndiGo and Air India Express, strengthening its presence in the fast-growing South Asian aviation market. Under the deal with IndiGo, Turkish Technic will perform redelivery checks on 10 Airbus A320neo aircraft. The two companies are also in talks for an additional agreement covering landing gear overhauls. Meanwhile, Air India Express signed a comprehensive component support agreement covering 190 Boeing 737-8 and -10 aircraft. The agreement includes pooling, repair, overhaul, modification, and logistics services. These partnerships highlight Turkish Technic's growing role as a global MRO provider and reflect its strategic push into the Indian aviation market, offering reliable and cost-effective maintenance solutions to support expanding fleets.

FAA Orders New Inspections for Boeing 787 Over Structural Concerns

The FAA is issuing a new Airworthiness Directive (AD) for Boeing 787 Dreamliners, requiring inspections of the forward pressure bulkhead due to reports of "excessive gaps." This critical structure separates the pressurized cabin from the unpressurized nose section. Gaps could allow debris buildup, leading to corrosion, fatigue cracks, and potential structural failure. The directive applies to all 787-8, 787-9, and 787-10 models, adding to ongoing safety concerns. Recently, a LATAM 787-9 experienced a sudden descent, prompting further scrutiny. The FAA also previously mandated inspections of seat track fittings over material quality issues. While such directives are routine, repeated safety concerns with the 787 raise questions about Boeing's manufacturing processes. Inspections may cause temporary airline disruptions, but they are crucial for ensuring passenger safety.

Fuel-Efficient Sharkskin-Like Coating Gains Traction

In the early 1970s, German biologist Wolf-Ernst Reif was studying sharkskin fossils when newly available scanning electron microscopes enabled him to discover small longitudinal grooves. He then found the same microstructures in the skins of contemporary fast-swimming sharks. When Reif spoke with Dietrich Wolfgang Bechert, a scientist working on turbulence at German aerospace center DLR, they understood the purpose of those microstructures, now known as riblets: They reduce friction drag by limiting contact between vortices in the turbulent boundary layer to the sharp tips of the microns-high grooves. Fast-forward to November 2019. After three years of testing an adhesive film mimicking sharkskin, Lufthansa Technik (LHT) obtained the first supplemental type certificate (STC) to use it on the Boeing 747-400. Australian startup MicroTau began testing a competing riblet film two years later. LHT's AeroShark is in service on 27 aircraft mostly Boeing 777-300ERs and 777Fs, as well as four 777-200ERs and one 747-400. The film consists of prism-shaped 50-micron riblets. Installing the adhesive film involves placing the riblets at various angles to follow the airflow. As AeroShark is designed for the cruise phase, it is more suitable for long-haul flights than short hops, LHT engineers say.

Airbus Welcomes Jackson Square Aviation as New A320neo Customer

Jackson Square Aviation Orders 50 Airbus A320neo Aircraft in Announcement from Toulouse, France on March 12, 2025. This agreement marks JSA's first direct order with Airbus, making the company a new customer for Airbus. JSA operates as part of Mitsubishi HC Capital Group and has long been recognized as a global leader in the sale and leaseback financing of Airbus aircraft. Kevin McDonald, Chief Executive Officer of JSA, commented, "This is an exciting milestone in JSA's history. We look forward to expanding our relationship with Airbus. We are thrilled to add the A320neo to our long-term portfolio as we continue our mission to provide superior fleet and capital solutions to the world's airlines." Benoit de Saint-Exupéry, Airbus Chief Commercial Officer, Commercial Aircraft, expressed his satisfaction with JSA's selection of the Airbus A320neo. "Jackson Square Aviation has an impressive customer base, and we welcome their decision to join the Airbus family. Following a comprehensive evaluation, JSA's selection of the Airbus A320neo adds the leading single-aisle aircraft family, offering exceptional performance and passenger comfort, to their aircraft portfolio for airlines." This order includes both A320 and A321neo aircraft. Both models offer up to 20% fuel savings and a 50% reduction in noise compared to previous generation single-aisle aircraft. Additionally, these aircraft can operate with up to 50% Sustainable Aviation Fuel (SAF), with plans to increase this to 100% by 2030. The A320 Family has received over 19,000 orders worldwide and maximizes passenger comfort with one of the widest single-aisle cabins. This agreement strengthens the ties between Jackson Square Aviation and Airbus, while also highlighting the increasing importance of sustainability and performance-oriented investments in the aviation industry.

Unical Launches First A320neo Dismantling Program to Support Aftermarket Demand

As the aviation industry focuses on the production rate of Airbus' best-selling A320neo family, part-out companies are also on the move. Unical Aviation announced that it has purchased multiple A320neo aircraft to be dismantled by its subsidiary ecube. The first aircraft will be dismantled this month. Unical described this project as the first dismantling program dedicated to the A320neo family. "By launching the dismantling process for A320neo aircraft, we aim to provide timely and cost-effective solutions to the changing needs of airlines and maintenance companies," said David Dicken, the company's Vice President of Asset Management. With this initiative, Unical aims to bring A320neo parts to the second-hand market faster and reduce maintenance times. However, it is stated that this advantage may be limited as the A320neo's fuselage structure is approximately 95% identical to the A320ceo.

Falcon Technic to Invest $100M in Major Dubai MRO Facility Upgrad

Falcon Technic, a UAE-based MRO and FBO provider, has unveiled plans to invest $100 million in upgrading its maintenance facilities at Al Maktoum International Airport in Dubai. The investment is part of the company's long-term strategy to expand its presence in the Middle East's fast-growing aviation sector and offer comprehensive, high-capacity MRO solutions. The announcement follows Falcon Technic's receipt of CAR 145 certification from the UAE General Civil Aviation Authority (GCAA) last year, authorizing the launch of its MRO operations. The upcoming facility upgrade will include expanded hangar space, advanced tooling, and enhanced support capabilities for a wide range of commercial and business aircraft. This expansion positions Falcon Technic as a rising MRO player in the region, aiming to serve both regional and international operators with efficient, high-quality maintenance services in one of the world's key aviation hubs.

Boeing Advances T-7A Red Hawk Program With Key Early Achievements

Boeing has achieved key early milestones in its revised plan for the T-7A Red Hawk program, aiming to address past development challenges. The T-7A, designed as a next-generation training aircraft for the U.S. Air Force, experienced significant delays due to software issues and production setbacks. However, Boeing's updated strategy, emphasizing more rigorous testing and quality control, has begun to show positive results. According to Boeing officials, several of the program's critical performance targets have now been met, including stability and control metrics during flight testing. These improvements come as the company works toward delivering the first operational aircraft, with production at the St. Louis facility now ramping up. The revised approach includes enhanced coordination with the U.S. Air Force to identify and resolve technical problems earlier in the process. Despite earlier delays that pushed initial operational capability to late 2027, Boeing remains confident that the T-7A will offer a significant leap in pilot training capabilities. Featuring advanced digital design techniques, the T-7A promises faster development cycles and easier future upgrades compared to legacy aircraft.

Pride of Indian Airlines, IndiGo

Operating approximately 2,200 flights daily, India's largest airline, IndiGo, continues to make headlines in 2025 with its innovations. In 2023, IndiGo shifted focus to wide-body aircraft and entered into a partnership agreement with Turkish Airlines (THY) for its first experience, flying from India to Istanbul with Boeing 777 aircraft. With over 400 aircraft in its fleet, the airline took significant steps after this flight to add wide-body Airbus A321 and A350 aircraft to its fleet by 2026. At the start of 2025, IndiGo leased a Boeing 787-9 wide-body aircraft from Norse Atlantic Airways under a damp lease agreement. After March 1, flights departing from Delhi have been landing in Bangkok with the Boeing 787-9. IndiGo is expected to receive three additional aircraft in the second half of the year and plans to begin flights to Amsterdam and Manchester in July. This is of great significance to India, as it will be the first and only direct flight to northern England. The Boeing 787-9 will feature 56 IndiGo Stretch seats and 282 economy class seats. While further improvements in onboard comfort are expected, IndiGo's CEO, Pieter Elbers, announced, "We plan to shift our operations from Delhi and Bangkok to Europe starting mid-summer," signaling the company's proud anticipation.

Business Aviation Asserts Role in European Recovery

The unfolding crisis for Europe's stagnating economies presents an opportunity for business aviation to recast itself as part of the solution rather than part of perceived problems. EBAA takes some encouragement from politicians who now appear more focused on how they can reverse the continent's decline in the face of hostility from the new U.S. administration and political fragmentation among European Union (EU) member states However, EBAA officials see EU leaders somewhat paralyzed by political polarization and failing to take strategic decisions at a time when they are urgently needed. This in turn blocks paths to progress on issues critical to business aviation, such as impractical restrictions on tankering fuel and reversing onerous taxes such as those recently imposed on charter flight passengers in France.

One Year Later, Gulfstream Delivers 50th G700

Gulfstream has delivered the 50th G700 since the company's newest ultra-long-range jet entered service in April 2024, following completion at its Savannah, Georgia headquarters. The G700 fleet has logged more than 11,700 flight hours since then. As the in-production, purpose-built business jet with the "most spacious" cabin at a volume of 2,603 cu ft, the G700 can accommodate up to five living areas and features a large "ultra-galley or a grand suite with fixed bed and shower." Cabin altitude at FL410 is 2,840 feet, the lowest in business aviation. Additional customization options include high-speed internet and ultra-high-definition circadian lighting. Maximum range is 7,750 nm at Mach .85 or 6,650 nm at Mach .90 with maximum operating speed Mach .935. The G700 has demonstrated its globe-girdling capability with more than 80 city-pair speed records.

StandardAero To Add Leap Engine Leasing Services

StandardAero has announced plans to start leasing CFM International Leap engines on short-term arrangements for operators undergoing shop visits. The U.S. engine MRO, which last year became one of the inaugural five members of CFM's Premier MRO network, said it has contracted engines with several engine lessors to supply airlines and asset managers in its customer base with Leap-1A and -1B engines, which power Airbus A320neo and Boeing 737 MAX aircraft. After signing a non-airline CFM Branded Service Agreement in March 2023 to join the Leap aftermarket network, StandardAero converted its existing facility in San Antonio to focus on quick-turn and performance restoration shop visits for the 1A and 1B variants with two correlated test cells. It ramped up to full Leap capability at the Texas site at the end of last year and looked to relocate other engine product lines out of San Antonio in order to accommodate the Leap. In April, it entered terms with CFM International to accelerate operational efficiency in San Antonio and expand throughput capacity by 2029 to meet a larger than expected wave of shop visits between now and the end of the decade.

Boeing Secures Major Orders as Innovation Accelerates in Aviation

Qatar Airways and Etihad Airways have placed major widebody orders with Boeing, signaling continued growth in the Gulf region's aviation sector. Qatar's agreement for up to 210 aircraft was announced during a high-profile U.S. visit, highlighting strong U.S.-Middle East aerospace ties. Meanwhile, the cargo conversion market remains active. A Boeing 777-300ER was transferred to Israel Aerospace Industries for freighter modification, and EFW unveiled its first converted Airbus A330 for U.S.-based ATSG. New aircraft concepts are also gaining attention. JetZero's blended-wing Z4 and Otto Aviation's Phantom 3500 are pushing aerodynamic innovation. In parallel, hydrogen-electric and eVTOL test programs are progressing, promising a shift in aircraft technology and future maintenance demands.

Rolls-Royce Nears Certification for Pearl 10X Engine

Rolls-Royce is on the verge of completing the certification process for its Pearl 10X engine, which will power Dassault Aviation's upcoming ultra-long-range business jet, the Falcon 10X. With around 3,400 test hours completed, only one major test emissions performance remains before full certification.
The Pearl 10X has successfully passed key certification milestones, including type testing, maintenance interval validation, bird strike testing, and crosswind trials. Engine flight tests concluded last year after 25 sorties using a modified Boeing 747-200 testbed. Rolls-Royce builds all its business jet engines at its Dahlewitz facility near Berlin, which recently celebrated the delivery of its 9,000th engine. The site is also central to the company's future developments, including the upcoming assembly of Trent XWB-84 engines for the Airbus A350-900 starting in 2026.

United Airlines Breaks Ground on $315M Orlando Maintenance Hub

United Airlines has officially begun construction on a new state-of-the-art maintenance complex at Orlando International Airport. Spanning 354,400 square feet, the facility will include two large hangars, support shops, office spaces, and work areas, and is designed to handle up to six narrowbody aircraft or a mix of one widebody and three narrowbodies at the same time. The project represents a $315 million investment and is part of United's broader strategy to expand its maintenance infrastructure to support fleet growth and enhance operational reliability. Once completed expected by late 2027 the complex will play a vital role in United's network-wide technical support, while also creating new jobs and strengthening the airline's long-term presence in Central Florida. These developments in the first quarter of 2025 highlight myTECHNIC's strengthened position in the aviation maintenance sector, driven by operational excellence and strategic growth

myTECHNIC Kicks Off 2025 with Strong Momentum

Since the beginning of 2025, Istanbul-based MRO provider myTECHNIC has gained notable momentum with its operational achievements and strategic collaborations. The company has not only continued to provide high-quality maintenance services to its existing clients but also expanded its portfolio with new partnerships. In the first months of the year, myTECHNIC successfully completed maintenance on 18 aircraft from SunExpress and 17 aircraft from Ryanair. As part of a sustainability initiative, a tree was planted for each Ryanair aircraft serviced. The company also welcomed a new customer, Geosky, by performing a successful maintenance check on a Boeing 767F, and reestablished cooperation with Ariana Afghan Airlines. On the strategic side, a consignment agreement with UK-based Aerospheres enabled 24/7 access to chemical products, reducing stock costs and improving operational efficiency. Additionally, a partnership with Aeroservices for the supply of ExxonMobil aviation oils and chemicals contributed to faster and more reliable maintenance processes. Internationally, myTECHNIC strengthened its global presence by participating in major industry events such as MRO Americas 2025 in Atlanta and MRO Middle East 2025 in Dubai. The company also implemented a currency adjustment policy, increasing the internal exchange rate for salary calculations, thereby improving employee compensation. These developments in the first quarter of 2025 highlight myTECHNIC's strengthened position in the aviation maintenance sector, driven by operational excellence and strategic growth.

Airbus Selects VAS Aero Services for Additional A380 Teardowns

Airbus has chosen VAS Aero Services to manage the dismantling and redistribution of serviceable components from three more Airbus A380 aircraft scheduled for retirement. The teardown work will be carried out in collaboration with long-time partner Tarmac Aerosave. Recovered parts will be refurbished and strategically placed across Europe to support operators and MROs throughout the EMEA region. With this agreement, VAS Aero Services reaches a total of 13 A380 dismantlement projects, reinforcing its position as a key player in the aftermarket lifecycle management of the world's largest passenger aircraft.

SkyWest Partners with Liebherr for Long-Term E175 Landing Gear Support

SkyWest Airlines has signed a multi-year agreement with Liebherr-Aerospace Saline for the overhaul of landing gear systems on its Embraer 175-E1 fleet. The deal, which spans through 2032, will see Liebherr perform comprehensive landing gear overhauls, starting later this year. The agreement includes options for future expansion and extension, ensuring long-term support for SkyWest's regional operations. As one of the largest operators of the E175 in North America, SkyWest is reinforcing its commitment to reliability and safety by partnering with a leading OEM-certified MRO provider. The partnership also highlights Liebherr's growing role in regional aircraft support, offering OEM-quality service backed by global logistics and technical expertise.

Air Serbia Enhances Operational Efficiency with AI-Powered Records Platform

Air Serbia has taken a major step in its digital transformation by implementing AMROS Innovations' LISA Aircraft Records Management system. This AI-powered platform is designed to automate and streamline aircraft record-keeping, improving accuracy, efficiency, and regulatory compliance. The airline has also integrated LISA with its AMOS maintenance and engineering software via a custom API, allowing real-time synchronization between maintenance actions and digital records. This seamless connection minimizes manual workload, reduces the risk of discrepancies, and ensures faster access to critical data during audits and inspections. Managing records for its fleet of 29 aircraft, Air Serbia aims to boost operational transparency and strengthen airworthiness oversight. A company spokesperson noted that the adoption of LISA reflects Air Serbia's broader strategy to embrace innovation and uphold the highest standards in aviation safety and efficiency.

Embraer Adopts 8tree's dentCHECK to Boost Inspection Efficiency in Nashville

Embraer Aircraft Maintenance Services has taken a notable step toward enhancing its technical operations by integrating 8tree's dentCHECK technology into its Nashville facility. This advanced 3D dent-mapping solution is now being used across Embraer's commercial and executive jet fleets to improve the precision and speed of dent and surface inspections. dentCHECK, developed by 8tree, is a portable, wireless 3D scanning tool that delivers real-time "go/no-go" assessments of surface damage. Compared to traditional inspection methods, the device significantly reduces the time required for both damage evaluation and reporting helping maintenance teams make faster, data-driven decisions. For Embraer, this integration is expected to shorten aircraft downtime and boost the efficiency of its maintenance operations. The ability to capture and document damage with high accuracy not only enhances airworthiness assurance but also supports faster return-to-service timelines.

Lion Air Selects StandardAero for CFM56-7B Engine MRO Services

Lion Air, Indonesia's largest privately owned airline, has signed a comprehensive Maintenance, Repair, and Overhaul (MRO) agreement with StandardAero for the support of its CFM56-7B engine fleet. The engines, which power the airline's expansive Boeing 737-800 and 737-900 aircraft, will undergo performance restoration shop visits at StandardAero's CFM-authorized facility in Winnipeg, Canada.With a fleet exceeding 100 aircraft relying on the CFM56-7B engine, Lion Air sought a proven partner to ensure high reliability, performance, and turnaround efficiency. StandardAero brings substantial expertise to the table, having completed over 1,000 shop visits on this engine type. Its reputation for quality and timely delivery made it a strategic fit for Lion Air's operational goals. This partnership will enable Lion Air to maintain optimal fleet availability while minimizing downtime and maintenance-related disruptions. It also reflects the airline's ongoing investment in technical excellence and its proactive approach to scaling up maintenance capabilities as its operations continue to grow.
By partnering with StandardAero, Lion Air reinforces its dedication to maintaining world-class safety, reliability, and operational performance across its network.

Sunclass Airlines Partners with flydocs to Digitize Records and Asset Management

Sunclass Airlines, the Nordic region's leading charter carrier, has signed a five-year agreement with aviation software provider flydocs to implement its Digital Records Management (DRM) and Lifecycle Asset Management (LAM) solutions. This partnership marks a key step in the airline's ongoing efforts to modernize its maintenance and asset management processes With the integration of DRM and LAM, Sunclass will digitize and centralize its aircraft technical records, gaining real-time visibility into asset compliance and readiness especially in the context of lease returns and fleet transitions. The unified platform will allow the airline to align asset strategies more closely with engineering and maintenance priorities.This shift toward a digital-first approach will enable smarter maintenance planning, reduce the risk of compliance issues, and support cost-effective decision-making through predictive analytics and scenario modeling. Sunclass Airlines says the collaboration with flydocs underscores its commitment to innovation and operational excellence.

LATAM Airlines Adopts Aviatar Platform to Enhance Fleet Health Monitoring

LATAM Airlines Group has chosen Lufthansa Technik's Aviatar digital platform to support predictive maintenance and streamline technical operations across its fleet. The agreement includes implementation of Aviatar's Predictive Health Analytics and Electronic Technical Logbook (ETL) applications. The platform will be deployed across LATAM's mixed fleet of Airbus A320, Boeing 777, and Boeing 787 aircraft. By leveraging real-time data and predictive insights, Aviatar will help LATAM improve aircraft availability, reduce unscheduled maintenance events, and optimize maintenance planning. This move reflects LATAM's ongoing investment in digital innovation to enhance reliability, safety, and operational efficiency throughout its network. SAS Renews Long-Term Wheels and Brakes Agreement with TP Aerospace. SAS Scandinavian Airlines has extended its partnership with TP Aerospace under the Cycle Flat Rate Program, which provides fully serviced wheels and brakes for the airline's fleet. The renewed agreement covers SAS's Airbus A320 family, A330, A350, and Boeing 737NG aircraft. SAS has been using the program since 2019, benefiting from predictable costs, streamlined logistics, and reliable component availability. The extension reinforces the airline's trust in TP Aerospace's support capabilities and commitment to maintaining high operational standards across its diverse fleet.

MESA to Build New 60M Maintenance Hangar at Beja Airport

MESA, the aircraft maintenance subsidiary of Hi Fly airline group, has unveiled plans to construct a second large-scale hangar at Portugal's Beja Airport as part of its ongoing expansion. The new facility will span approximately 118,000 square feet and is designed to accommodate Airbus aircraft, significantly increasing MESA's capacity to serve airline and leasing customers. The 60 million (approximately $65 million) investment covers not only the hangar structure but also supporting infrastructure, advanced equipment, and technician training programs. Once operational, the new hangar will triple MESA's existing maintenance capabilities at Beja, positioning the company as a growing force in the European MRO market. The expansion reflects MESA's strategic focus on meeting rising demand for high-quality, flexible aircraft maintenance solutions, especially for Airbus narrowbody and widebody types. The project is expected to create new jobs and enhance Beja Airport's standing as an emerging aviation hub.

Boeing to Sell Key Digital Aviation Assets to Thoma Bravo

Boeing has announced a definitive agreement to sell major portions of its Digital Aviation Solutions business to private equity firm Thoma Bravo. The deal includes notable assets such as Jeppesen, ForeFlight, AerData, and OzRunway all prominent players in flight planning, electronic charts, aircraft data, and digital operations. Despite the divestiture, Boeing will retain what it refers to as its "core digital capabilities." These include advanced systems that leverage aircraft and fleet-specific data for maintenance diagnostics, repair planning, and predictive and prognostic maintenance services. The move signals a strategic refocus by Boeing on its in-house digital technologies that directly support aircraft health and performance, while allowing the sold brands to grow under Thoma Bravo's software-centered portfolio. The transaction is expected to reshape the landscape of aviation IT services while maintaining continuity for existing airline and MRO customers.

Joramco Signs Key Agreements with IndiGo and TIM Aerospace

Joramco has signed two significant agreements to expand its global MRO presence. The first is with IndiGo, India's largest low-cost airline, covering heavy maintenance checks and end-of-lease services for its fleet. This deal supports IndiGo's long-term fleet management strategy and strengthens Joramco's footprint in the South Asian market. Additionally, Joramco signed a framework agreement with TIM Aerospace to collaborate on commercial and operational MRO initiatives. The partnership aims to increase capacity and market reach by offering joint service solutions to airlines and operators. These agreements highlight Joramco's strategy to grow through international partnerships and reinforce its position as a leading independent MRO provider.

Jet Parts Engineering Acquires Percival Aviation to Expand Cabin Solutions Portfolio

Jet Parts Engineering, a Seattle-based developer of PMA parts, DER repairs, and MRO solutions, has announced the acquisition of UK-based Percival Aviation. Headquartered in Hampshire, Percival specializes in the design, manufacturing, and maintenance of aircraft interiors and associated cabin equipment. The acquisition aligns with Percival Aviation's recent growth strategy aimed at expanding its international footprint and strengthens Jet Parts Engineering's capabilities in the cabin segment. With this move, Jet Parts gains access to a broader portfolio of cabin products and certifications, while Percival benefits from expanded market reach and engineering synergies. The deal reflects Jet Parts Engineering's commitment to offering end-to-end support for commercial operators by integrating advanced interior solutions into its established portfolio of structural and component services. It also reinforces the company's global expansion efforts and positions it to meet growing airline demands for cost-effective, high-quality aftermarket support.

TURKISH TECHNIC SETS ISTANBUL TO BECOME A WORLD-LEADING

ROLLS-ROYCE ENGINE MAINTENANCE HUB

Turkish Technic and Rolls-Royce are joining forces. A new licensed engine maintenance center will be established at Istanbul Airport to service Trent XWB and Trent 7000 engines. Scheduled to become operational by the end of 2027, the facility will have an annual capacity of 200 engine shop visits, making it one of the largest in the region. This strategic partnership positions Türkiye as a global hub for high-tech aviation services.

Turkish Technic, a leading maintenance, repair, and overhaul (MRO) provider worldwide, has signed an agreement with Rolls-Royce, one of the world's largest aircraft engine manufacturers. This collaboration will establish a state-of-the-art authorised licensed engine maintenance centre in Istanbul Airport that will propel Turkish Technic's capabilities to the pinnacle of the industry. As the newest member of the Rolls-Royce MRO Network, the centre will reinforce Turkish Technic's standing at the forefront of the maintenance industry whilst strengthening Türkiye's position as a global hub for high technology aviation services.

The new facility, targeted to be completed by the end of 2027, will enable Turkish Technic to deliver comprehensive maintenance services for Trent XWB-97, Trent XWB-84, and Trent 7000 engines which power the Airbus A350 and Airbus A330neo aircraft respectively. It will also help create a highly skilled workforce within the ecosystem while providing support for the development of local supply chains and domestic engineering talent. This will greatly enhance and expand the scope of Turkish Technic's engine maintenance and overhaul operations. With a planned capacity of ~200 shop visits per year, the facility is expected to be one of the largest in the region, further solidifying Turkish Technic's position as a premier provider of engine maintenance services. The facility will also provide services to third-party Rolls-Royce TotalCare customers around the world, as well as the Turkish Airlines fleet.

Commenting on this significant milestone, Prof. Ahmet Bolat, Turkish Technic Chairman of the Board and the Executive Committee, stated: ‘‘We are thrilled to partner with one of the world’s leading engine manufacturers. Rolls-Royce’s expertise will be instrumental in enhancing our engine maintenance operations. With our new facility expansion, we will be equipped to perform comprehensive maintenance services across a wide range of Trent engine models, allowing us to meet the evolving needs of the industry. Solidifying our position in the MRO industry, this partnership significantly expands our maintenance capabilities and empowers us to continue delivering world-class service to our customers worldwide.”

Commenting on the agreement, Rob Watson, President – Civil Aerospace, Rolls-Royce said: “We’re significantly increasing our global MRO capacity by 2030, and today’s announcement marks an important milestone on that journey, as we add Turkish Technic to our global network of capable, flexible and resilient MRO providers to support our TotalCare customers around the world. It reinforces our strong partnership with Turkish Airlines - whose fleet of Airbus A350s will be supported by this facility – and shows confidence in Turkish Technic’s ability to realise their ambition to become a world-class provider of civil large aero engine MRO.

“In April 2024, Rolls-Royce reaffirmed its commitment to Türkiye, which explored the implementation of several industrial initiatives, today’s agreement is a demonstration of that. We are delighted to welcome Turkish Technic into our expanding network of Trent engine maintenance centres.”

Leveraging Türkiye’s one-of-a-kind geostrategic location that connects continents, commerce and culture since ancient times; this new initiative aligns with broader efforts to advance innovation, sustainability, and economic collaboration in the aviation industry, further cementing the Türkiye–United Kingdom relationship as a model of strategic partnership.

BUILDING THE FUTURE OF AVIATION MAINTENANCE:

UTED'S GLOBAL VISION 2025

"Connecting knowledge, shaping futures: UTED's global commitment to aviation excellence."

From Dubai to Atlanta, from cutting-edge MRO technologies to the future of technician training, UTED's active participation in global aviation platforms throughout 2025 highlights its unwavering commitment to elevating Türkiye's aviation maintenance sector to international standards. By embracing digital transformation, supporting competency-based training, and fostering global collaborations, UTED strengthens its role as a catalyst for innovation and excellence. With a vision focused on empowering Turkish aircraft maintenance professionals, UTED continues to shape the global narrative of aviation safety, sustainability, and technical leadership.

As the Aircraft Technicians Association (UTED), we are committed to actively participating in globally recognized aviation industry events to closely monitor industry advancements, forge strategic partnerships, and enhance the professional growth of Turkish aircraft maintenance technicians. Our consistent presence at major international forums such as Aviation Week MRO Middle East, Aircraft Interiors Middle East (AIME), MRO Americas, and the World Aviation Training Summit (WATS) reflects our dedication to promoting Türkiye's aviation maintenance capabilities, fostering innovation, and sharing best practices across global platforms.

Our primary objective through these participations is to strengthen Türkiye visibility and influence within the international aviation community. By engaging directly with industry leaders, exploring cutting-edge technological solutions, and embracing evolving trends such as digitalization, sustainability, and workforce development, UTED aims to elevate the standards and competencies of Turkish technicians to align with international benchmarks.

Participation in these events provides invaluable opportunities for knowledge exchange, networking, and collaboration, laying a solid foundation for future strategic alliances and business developments. These efforts are crucial not only for enhancing our members' professional expertise but also for positioning Turkey as a competitive and innovative player within the global aviation maintenance landscape.

In the following sections, we detail our recent engagements at these prestigious events, highlighting key insights, significant developments, and strategic initiatives that underscore our vision and continuous pursuit of excellence within the aviation maintenance industry.

GLOBAL AVIATION LEADERS GATHER AT AVIATION WEEK MRO MIDDLE EAST AND AIME 2025

Global aviation supply chain leaders convened at Aviation Week MRO Middle East and Aircraft Interiors Middle East (AIME) 2025, held on February 10–11, 2025, at the Dubai World Trade Centre.

The event showcased cutting-edge technologies, innovations, and solutions shaping the future of commercial aviation. Representing UTED, President Ömür Caninsan and Board Member Hakan Kurt attended the exhibition, emphasizing the critical role of technicians and promoting UTED International to an international audience.

This record-breaking edition brought together over 260 exhibitors, more than 100 airline operators, and 60+ qualified airline buyers under the dedicated Buyer Program. More than 7,000 visitors from around the world attended, highlighting the growing influence of the Middle East in the global aviation landscape.

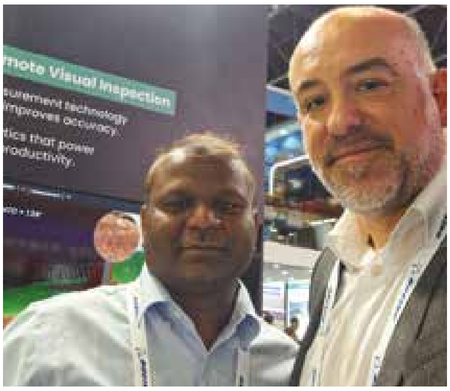
Throughout the event, strategic discussions were held in the Go Live! Theater, covering workforce and supply chain challenges, sustainability initiatives, fleet management optimization, and emerging technologies. Special sessions also focused on regional markets, including India and the cargo sector. Meanwhile, AIME discussions emphasized cabin innovations, AI-driven technologies, inflight entertainment and connectivity (IFEC), cabin modernization, and sustainability challenges.

The event provided exceptional networking opportunities, with industry leaders sharing insights, case studies, and practical strategies to overcome current challenges. Notably, Turkish companies such as Turkish Technic, myTECHNIC, Be Aero, Aviation Parts and Services, Total Technic, MakroAero, LogoSky, Aldis, OMS Aero Group, and Contempo Carpets marked their growing presence in the Middle Eastern market, showcasing Türkiye expanding influence.

Significant agreements were announced during the exhibition. Turkish Technic signed a comprehensive component maintenance agreement with Air India Express, covering 190 Boeing 737-8 and 737-10 aircraft. Furthermore, a maintenance agreement was signed between Turkish Technic and IndiGo for the redelivery maintenance of over ten Airbus A320neo aircraft, further strengthening Turkish Technic's footprint in the region.

Current Trends and Future Outlook of the Middle East MRO Market
Following the recovery from the COVID-19 pandemic, global commercial aviation is entering a new growth phase. The worldwide fleet is expected to surpass 29,000 aircraft by 2025 and reach 38,300 aircraft by 2035, driven by a compound annual growth rate (CAGR) of 2.8%.

The Middle East, with its ambitious fleet expansion strategies and rising passenger demand, is poised to be a major contributor to this growth.



Narrow-body aircraft production is projected to reach 2,400 units in 2025, significantly boosting demand for MRO services in the region.

Maintenance needs for new-generation engines, along with the complexity of modern maintenance operations, are increasing MRO provider workloads. As airlines in the Middle East expand, the regional MRO market is expected to witness robust growth.

Technological Innovations and Digitalization
Between 2025 and 2035, the MRO sector will experience major transformation driven by technological advancements.

Key trends include:

- Digital Twin technologies for predictive maintenance,
- Big Data analytics for operational optimization,
- AI-supported maintenance systems to enhance reliability and reduce downtime.

Leading airlines like Emirates and Etihad are adopting IoT-based health monitoring solutions and predictive maintenance algorithms, enhancing operational efficiency.

Moreover, blockchain-based maintenance record systems are gaining traction, providing secure and transparent maintenance histories for aviation components.

Middle East's Rising Role in the Global MRO Industry
By 2025, the Middle East is strengthening its position as a competitive player in the global MRO landscape.

Key drivers include:

- Expansion of large-scale MRO facilities,
- Adoption of sustainable maintenance solutions,
- Strong investments in digital transformation.

Leading players such as Emirates, Turkish Technic, Saudia Aerospace Engineering Industries, and Etihad Engineering are set to compete with the world's largest aviation maintenance hubs.

The Middle East is rapidly emerging as a global center for aviation maintenance and repair, offering significant opportunities for future aviation technicians and industry professionals.

MRO AMERICAS 2025 & WORLD AVIATION TRAINING SUMMIT (WATS) 2025

As the Aircraft Technicians Association (UTED), we participated in prestigious international events such as MRO Americas 2025 and World Aviation Training Summit (WATS) 2025 in April 2025. Our aim was to closely follow the global developments and transformations in the aviation maintenance sector, establish strong relations on behalf of our sector, engage in knowledge exchange, and promote our association's international publications.

The continuously evolving and dynamic structure of the global aviation ecosystem makes active visibility at international events more crucial than ever. In this regard, UTED has set itself the primary goal of taking an active role in such organizations to promote Türkiye aviation maintenance competencies, foster sectoral collaborations, and discover innovative practices that will contribute to the professional development of Turkish technicians.

Our presence on such international platforms provides our members with the opportunity to stay updated on the latest developments that enhance their knowledge and technical skills, while also representing Türkiye quality human resources in the aviation sector on the world stage. Thus, it creates an important opportunity for our sector to reach its deserved place in global competition.

UTED's participation not only increases the visibility of the Turkish civil aviation maintenance sector on international platforms but also plays a critical role in laying the foundations for future strategic collaborations.

In this context, the visits carried out with the participation of our Vice President Mr. M. Murat Baştürk and our Financial Secretary Mr. Cenk Can represented a significant step both in terms of the association's representation and in shaping the future professional careers of our members and guiding our sector. As a result of these initiatives, we continue to take firm steps to support Turkish technicians in achieving international competence by sharing the knowledge and experiences gained during these events with our members.

MRO Americas 2025 & AMC (Aerospace Maintenance Competition)

Held between April 8-10, 2025 in Atlanta, Georgia, MRO Americas 2025 is one of the largest global gatherings where companies, suppliers, technicians, engineers, and decision-makers in the maintenance and repair sector come together.

The event hosted more than 17,000 industry professionals and over 1,000 participating companies.

Key presentations covered a wide range of topics, including:

- Sustainability and Carbon Footprint Reduction
- Digital Transformation and Data Analytics
- Supply Chain Management and Logistics
- Workforce Development and Training
- Regulations and Compliance
- Innovative Maintenance Technologies
- New Maintenance Techniques, Tools, and Equipment

As UTED, we attended the relevant presentations, contacted many important MRO companies, promoted our association and our international publication UTED International, and conveyed both our profession and our country's aviation maintenance capabilities to international stakeholders.

We were honored to visit leading organizations in our country's maintenance and repair sector, such as Turkish Technic Inc. and myTECHNIC. This strengthened our belief that many more Turkish companies will participate in such major organizations in the coming years.

Many significant collaborations and supply agreements were announced at the event.

Boeing renewed its distribution agreement with ExxonMobil for aviation lubricants and signed a contract with Virgin Atlantic for the supply of 17 repaired and certified landing gear sets starting from 2026.

Satair made a strategic supply agreement with HAECO Group to improve expendable material supply processes, expanded its cabin parts distribution agreement with Collins Aerospace, and assumed the distribution of crew oxygen systems for Boeing platforms for Eaton.

AJW Group signed a long-term "power-by-the-hour" support program for Air Transat's Airbus A321ceo and A320neo fleet and collaborated with Inter-Tec Aero on Part 21J engineering services (avionics and structural repair solutions).

Some major trends highlighted at MRO Americas 2025 can be summarized as follows:

- **Artificial Intelligence (AI) Integration:** Predictive maintenance, inventory management, and workforce support systems saw the integration of AI applications. Companies like Microsoft, AAR Digital Services, and Pratt & Whitney emphasized the potential impact of generative AI on operational efficiency.
- **Workforce Development:** The "Welcome the Apprentice" session highlighted the importance of internship programs and in-house training practices. Organizations like United Airlines, Embry-Riddle Aeronautical University, and the Aviation Institute of Maintenance shared their initiatives for attracting young talents to the sector.

- **Sustainability Initiatives:** Lufthansa Technik, in collaboration with BASF, introduced AeroShark, a sharkskin-inspired surface film technology aimed at optimizing airflow and saving fuel consumption.
- **Digital Transformation:** Applications such as drone-supported aircraft inspections stood out, with HAECO Americas beginning to test drone-supported inspection applications in the United States.

According to the Aviation Week Network 2025 Fleet and MRO Forecast presented at the event, the MRO market is expected to experience strong growth in the coming period.

The main driving forces behind this growth include:

- Continued recovery in global air travel,
- Integration of emerging technologies into maintenance processes,
- Acceleration of fleet growth, especially in emerging markets.

Additionally, we closely observed the Aerospace Maintenance Competition (AMC) 2025, one of the prestigious competitions in the sector.

This year, 87 five-person teams competed across 27 different maintenance skill areas.

The competition provided an international platform for aviation maintenance technicians to showcase their knowledge, skills, and speed.

Organized in five categories commercial aviation, general aviation, military, MRO, and educational institutions each team competed in events within a 15-minute time limit.

As UTED, we completed the preliminary registration process to form a team representing Turkey at AMC 2026.

This initiative is of great importance for showcasing the international competencies of Turkish aircraft maintenance technicians and contributing to the elevation of professional standards.

MRO Americas 2025 was an event where technological innovations leading the sector's transformation, sustainability projects, and workforce development efforts were at the forefront.

The new agreements signed and technological solutions presented showed that the future of the MRO sector will be increasingly digital, sustainable, and human-centered.

World Aviation Training Summit (WATS) 2025

Held between April 7–10, 2025, in Orlando, Florida, the World Aviation Training Summit (WATS) 2025 is the world's largest international event focused on aviation training.

The summit comprehensively addressed global standards, innovative approaches, regulations in pilot, cabin crew, and maintenance technician training, and showcased the latest educational technologies such as AR and VR.

Some major trends highlighted at the event were:

Artificial Intelligence and Simulation Technologies:
The use of AI-supported simulations in pilot and maintenance technician training is increasing, making training processes more effective and efficient.

eVTOL and AAM Training Requirements:
Studies were conducted on the training needs for Electric Vertical Take-Off and Landing (eVTOL) vehicles and Advanced Air Mobility (AAM) platforms.

Sustainability and Green Training Practices:
Training programs aimed at reducing carbon footprints and promoting sustainable practices were emphasized.

Digital Transformation and Remote Training:
E-learning platforms, augmented reality, and virtual reality technologies are increasingly being integrated into training processes.

During the maintenance training session on the second day of the summit, the following key topics were presented:

- Rethinking Entry-Level Training to Attract and Retain the New Generation
- Evaluating Technician Performance in Competency-Based Training Programs
- A Modern Data Approach to Training Needs Analysis
- Challenges Faced in CBTA Applications for Maintenance Training
- Designing a Smart Technology Infrastructure for AI and Machine Learning
- Developing Training Content Using Generative AI
- Leveraging Human Performance Data and AI to Strengthen Competency-Based Training
- The Competency Dilemma: Training the Technician in Front of You
- Evolution of Live Training: Enhancing Engagement in Maintenance Technician Training Through Storytelling

WATS 2025 outlined important expectations for the future of aviation training:

Increased Global Demand for Training:
The growth of the aviation sector is raising the demand for qualified personnel such as pilots and maintenance technicians.

Technology-Based Training Models:
The use of AI, simulation, and digital platforms in training will become more widespread.

Sustainability-Focused Training Programs:
Educational content aimed at reducing environmental impacts will be developed.

Diversity and Inclusion:
The integration of women and individuals from diverse cultural backgrounds into the sector will be encouraged.

WATS 2025 emphasized the importance of technological innovations, sustainable practices, and diversity in aviation training.

The insights and discussions shared at the event provided important clues about the future of the sector.

As UTED, our participation in this event aimed to closely follow new global education trends and contribute to the development of maintenance technician training in Turkey.

We were also proud to visit HAVELSAN, one of Türkiye pioneers in simulation and software technologies, and to see the interest shown in our firm.

The information and observations gathered at WATS 2025 will serve as a guide for adapting new applications, digital platforms, and methodologies to maintenance technician training in our country.

UTED'S STRATEGIC TAKEAWAYS FROM 2025 AVIATION EVENTS

UTED's active engagement in Aviation Week MRO Middle East, AIME, MRO Americas, and the World Aviation Training Summit (WATS) 2025 stands as a testament to our strategic commitment to elevating Türkiye aviation maintenance sector to a globally recognized standard of excellence.

These prestigious gatherings offered invaluable opportunities to observe firsthand the rapid technological, operational, and educational transformations reshaping the aviation industry.

Through our participation, UTED not only strengthened its international visibility but also identified critical pathways to foster innovation, competency, and sustainability within the Turkish aviation maintenance community.

Key Strategic Insights Gained:

Accelerating Digital Transformation:
The events underscored the pivotal role of digitalization in maintenance operations. Emerging technologies such as predictive maintenance through AI, digital twin applications, and blockchain-based maintenance records are revolutionizing efficiency, safety, and traceability in aviation MRO services.

UTED recognizes the necessity of integrating these advancements into technician training and operational standards to ensure our workforce remains future-ready.

Embracing Sustainability as a Core Priority:
Sustainability was a dominant theme across all events, with initiatives aimed at reducing aviation's environmental impact through green maintenance technologies, carbon footprint reduction programs, and fuel efficiency innovations.

UTED is committed to supporting eco-friendly practices and promoting a culture of environmental stewardship among Turkish maintenance professionals.

Reinforcing Competency-Based Education and Training:
The growing emphasis on competency-based training (CBTA) frameworks, particularly at WATS 2025, highlighted the industry's move toward measurable, performance-driven education models.

UTED will continue to advocate for modernized training approaches, incorporating augmented reality (AR), virtual reality (VR), and AI-supported simulators to enhance technician preparedness and adaptability.

Strengthening Global Collaboration Networks:
Establishing direct connections with global industry leaders, airlines, OEMs, and training institutions revealed critical collaboration opportunities.

UTED aims to build on these relationships to facilitate cross-border knowledge exchange, joint projects, and strategic alliances, ultimately contributing to Türkiye positioning as a hub for high-quality aviation maintenance services.

UTED's Forward-Looking Vision:
Moving forward, UTED will translate the insights and connections gained from these international engagements into actionable initiatives that will:

- Enhance the global competitiveness of Turkish aircraft maintenance technicians by aligning education and operational practices with international standards.
- Accelerate the adoption of advanced technologies across the national maintenance sector.
- Support sustainable aviation initiatives in collaboration with domestic and international stakeholders.
- Strengthen Türkiye reputation as a dynamic, innovative, and reliable contributor to the global aviation maintenance and training community.

Through these strategic efforts, UTED reaffirms its dedication to shaping the future of aviation maintenance and training, both nationally and globally, and to empowering the next generation of Turkish aviation professionals with the skills, knowledge, and vision necessary to lead in an increasingly complex and competitive world.

THE FIRST AIRCRAFT TECHNICIAN AND AIRCRAFT MAINTENANCE TECHNICIANS DAY: **THE SILENT HEROES OF THE SKY**

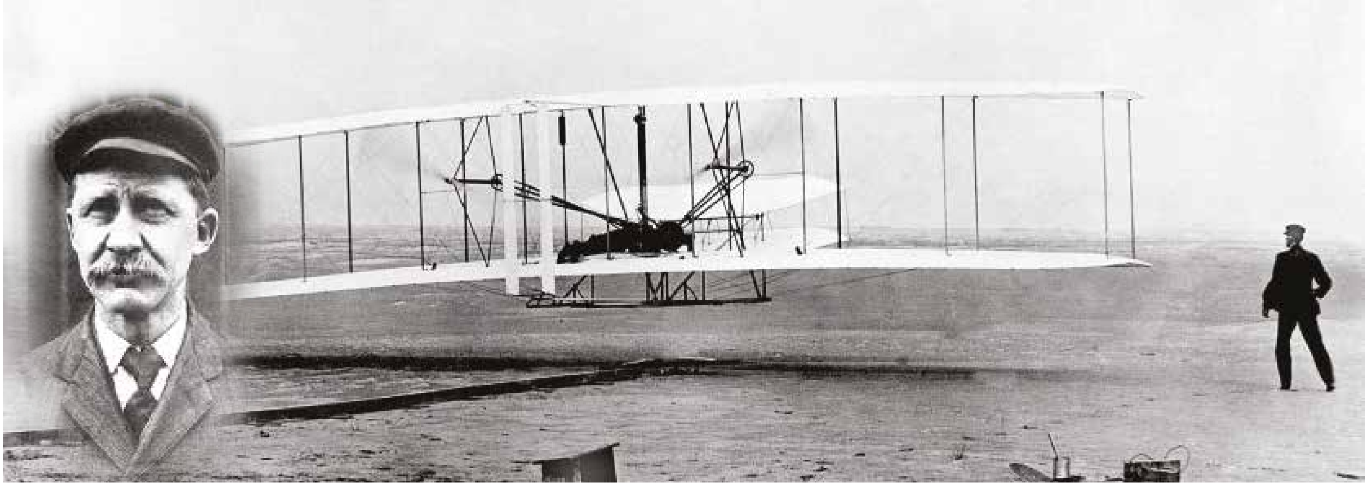
Aircraft maintenance technicians, who make safe flights possible and leave their mark on every bolt and system, are not merely mechanics they are true heroes who work with knowledge, precision, and dedication. On May 24th, Aircraft Maintenance Technicians Day, we respectfully honor this noble profession and the vital responsibility it carries, from Charles E. Taylor to today.

When we think of an aircraft technician, it is not only mechanical knowledge that comes to mind but also responsibility, attention, and innovation. Airplanes are complex machines carrying lives in the sky, each requiring perfect teamwork and meticulous maintenance. In this process, aircraft technicians serve as invisible but critically important heroes.

So, who was the first aircraft technician? Throughout history, as aviation developed, the need for maintenance and repair of airplanes arose. The first aircraft technician was a figure who, in the pioneering days of aviation, took on both the roles of mechanic and engineer. This person was not only responsible for fixing malfunctions but also continuously inspected systems and produced innovative solutions to ensure the safety of aircraft. Shortly after the Wright brothers' first flights, as aircraft became more complex, it became mandatory for maintenance and repair to be performed by experts. This first technician had to understand both the mechanical components and flight systems. The person who directly contributed to the safe flight of the aircraft laid the foundation for modern aircraft technicians. Their effort, knowledge, and meticulous work are considered one of the most critical pillars of today's aviation industry.

The Birth of the First Aircraft Technician: Charles E. Taylor – The Father of Aircraft Maintenance Technicians

The first aircraft mechanic was Charles E. Taylor. Mr. Taylor, or "Charlie," was the mechanic for the Wright brothers. When Orville and Wilbur needed an engine to power their Wright Glider, they asked Charlie if he could build one. The answer was, "Sure."



The historical roots of aircraft maintenance technicians trace back to Charles E. Taylor, who played a significant role in the construction of the Wright brothers' powered aircraft, a milestone in aviation history. Taylor earned his place in history as the first mechanic who produced the aircraft engine for the Wright brothers during their flight experiments. In 1903, one of the biggest challenges the Wright brothers faced was finding a lightweight, powerful, and efficient engine. At that time, existing engines were either too heavy or insufficient in power. It was exactly at this point that Taylor stepped in. In just six weeks, he designed and built an 8-horsepower engine weighing 91 kilograms. This engine was the critical element that enabled the Wright brothers' first powered flights. However, Taylor's importance was not limited to building this engine. He was also the first aircraft maintenance technician in history. Taylor combined the Wright brothers' glider with the engine, ensured the engine's operation, and performed pre-flight maintenance, repairs, and adjustments, thus laying the fundamental stones of the aviation industry. Although history often focuses on the Wright brothers' achievements, the contributions of significant figures like Taylor have remained in the shadows. Taylor was not in the spotlight but worked tirelessly behind the scenes, touching every screw of the aircraft, working day and night to ensure flawless operation – an invisible but indispensable hero. His legacy continues to light the way for thousands of aircraft maintenance technicians today.

Why Is Aircraft Maintenance Technicians Day Celebrated on May 24th?

The reason why International Aircraft Maintenance Technicians Day is celebrated on May 24th is that it is the birthday of Charles Edward Taylor. The idea of dedicating this special day was first brought to attention in the U.S. House of Representatives on May 24, 2007. The person who introduced the proposal was California Congressman Bob Filner. Following a vote on April 30, 2008, May 24th was officially recognized and began to be celebrated as "International Aircraft Maintenance Technicians Day."

The Importance and Responsibilities of Aircraft Technicians in Our Lives

Today, thousands of aircraft maintenance technicians walking in the footsteps of Charles E. Taylor work tirelessly with great dedication

to ensure flight safety. Aircraft technicians are not only responsible for maintaining mechanical and electronic systems; they also bear a great responsibility to ensure every detail is flawless. Because every action they take secures not only the machine but also the lives of those traveling inside it.

Technicians' fields of work are extremely broad. They are responsible for the maintenance and repair of every type of aircraft, from commercial passenger planes to military fighter jets, helicopters, and even hot air balloons. Rapid technological advancements force them to continuously update their knowledge and skills. For example, 3D scanning systems and artificial intelligence-supported analyses accelerate maintenance processes and minimize error rates. However, despite all these technological innovations, the human factor remains indispensable. Because behind every advanced system, there is always human experience, attention, and meticulousness. The burden on an aircraft technician's shoulders is great. This profession requires high knowledge, discipline, attention, and above all, working with a "zero-error" goal. Even the smallest mistake in aviation can cause irreversible results. Therefore, technicians perform their duties with great sacrifice day and night, regardless of cold, heat, or holidays.

The saying "There is no old aircraft, only poorly maintained aircraft" best summarizes the spirit of this profession. Technicians, who touch

every screw and bolt of the aircraft and test every system meticulously, are the unseen heroes of aviation. They not only perform maintenance and repairs but also guarantee aviation safety. In every phase from takeoff to landing, technicians' detailed work ensures the safety of passengers and crew. In their hands, the lives of millions of people in the sky are balanced on a delicate scale. From an aircraft's engine to electronic systems, hydraulic circuits to fuel systems, all components are protected by the expertise of aircraft technicians. This complex job requires deep knowledge and experience. Every maintenance and check leaves no room for error because safety in aviation must always be kept at the highest level.

Despite challenging conditions, aircraft technicians fulfill their duties with the highest professionalism and discipline. Their meticulous work reduces the risk of breakdowns and ensures flight continuity. They also play a critical role in adapting to new technologies. Developments in electronic systems, hybrid and electric aircraft projects, and similar innovations compel technicians to constantly renew and improve themselves.

Aircraft Maintenance Technicians Day: The Day of Honor for the Profession

Aircraft Maintenance Technicians Day is a special day that reminds all segments of society of the professional value and importance of aircraft technicians and appreciates their dedication, sacrifice, and professionalism. It also provides an important opportunity to direct young generations to this noble profession and enhance the respectability of the technician profession. This special day emphasizes that aircraft technicians are not only equipped with technical knowledge but also carry a strong safety culture, discipline, and a high sense of responsibility. The rapid technological developments in the aviation sector reveal more clearly every day how critical this profession is. Although digitalization and automation increase the workload and knowledge depth of technicians, no matter how much technology develops, the human factorespecially the expertise of aircraft technicians is always indispensable. Because no other element can replace the human eye, experience, and attention, even in the most advanced systems. Therefore, Aircraft Maintenance Technicians Day is not just a celebration but also a day of awareness and respect. Thanking the silent heroes of the sky, supporting their professional development, and easing their burdens is a common responsibility for all of us. Celebrated annually on May 24th, this special day, with the contributions of all stakeholders in the sector, makes the efforts of technicians visible and sheds light on the future of the profession. Under the leadership of institutions like UTED (Aircraft Technicians Association), Aircraft Maintenance Technicians Day is increasingly embraced by broader audiences, and the voices of technicians are heard louder. Because technicians are not only the caretakers of machines but also the unseen heroes who uphold the safe and sustainable future of aviation.

UTED's message for this meaningful day is very clear and significant:

"We proudly celebrate May 24th Aircraft Maintenance Technicians Day for you, our valuable technicians who are the unseen cornerstone of flight safety. Every screw, every checklist, and every detail you handle with care not only protects machines but also safeguards thousands of lives. You are the silent heroes who uphold the safe future of aviation."

SHAPING THE FUTURE OF MAINTENANCE TRAINING:

INSIGHTS FROM THE 82ND EAMTC GENERAL ASSEMBLY

The 82nd EAMTC General Assembly in Milan marked a turning point for aviation maintenance education. With over 50 organizations present, the event spotlighted Competency-Based Training and Assessment (CBTA) as the new standard. Showcased by Olympic Air and SWISS, CBTA proved its real-world impact cutting incidents by 35%. EASA's regulatory updates and the ongoing RMT.0544 reforms signal a unified move toward outcome-driven, behavior-based training. By 2027, 60% of members will be CBTA-first. The future of aviation training? It's already here.

The 82nd General Assembly of the European Aviation Maintenance Training Committee (EAMTC) brought together the aviation maintenance training community in Milan for a pivotal two-day gathering. With more than 50 member organizations participating including MROs, training organizations, regulators, and airlines the assembly served as a platform to advance training standards across Europe. The main theme of the event was clear: Competency-Based Training and Assessment (CBTA) is no longer just a concept it's becoming the foundation of a new training era.

CBTA in Action: From Concept to Implementation

Two key case studies headlined the transition from theory to application: Olympic Air and SWISS.

Olympic Air presented its CBTA program developed for non-Part-66 license holders with limited aviation backgrounds. The course was designed using ICAO's ADDIE model (Analyze, Design, Develop, Implement, Evaluate) and structured into five competency-based modules:

- **Safety & Human Factors (16 hours):** Focused on decision-making, risk awareness, and communication.
- **Basic Aeronautical Knowledge (24 hours):** Covered flight principles, structures, and propulsion systems.

- **Maintenance Practices (30 hours):** Practical training in tools, manuals, and procedures.
- **Regulatory Framework (8 hours):** Introduction to EASA Part-66 and Part-145 environments.
- **Competency Demonstration (8 hours):** Final scenario-based task evaluations with performance rubrics.

SWISS, in parallel, showcased its fully CBTA-integrated training for B1 engineers, emphasizing soft skills, real-world environments, and team performance. The outcome? A 35% reduction in human-factor-related maintenance incidents within one year.

Why CBTA Matters

The transition to CBTA reflects a broader philosophy shift. No longer are students evaluated solely by written tests; instead, training focuses on real-world outcomes. Key benefits discussed at the Assembly included:

- Real-world readiness over theoretical recall
- Behavior-based evaluations
- Fleet-specific and task-specific adaptability
- Emphasis on Threat & Error Management (TEM)
- Feedback-driven instruction cycles
- Regulatory standardization across Europe

Participants widely agreed that CBTA aligns better with the operational realities technicians face and builds a stronger safety culture across the industry.

RMT.0544: Regulatory Change in Progress

EASA representatives provided updates on the ongoing RMT.0544 rulemaking process for Part-147 organizations. Several significant proposals were reviewed:

1. **Language Proficiency:** B2 CEFR level will be the new standard for both nominated managers and instructors. C1 is no longer mandatory.
2. **Training Locations:** BT must be conducted only at approved sites, with a cap of three sessions per location annually.
3. **No Remote Exams:** Examinations must take place on-site under the supervision of Competent Authorities (CAs).
4. **Experience Flexibility:** Management roles can now be filled by those with backgrounds in compliance or quality oversight not only aviation.
5. **Simulation in Training:** Discussion continues on whether simulated environments can fully substitute real maintenance workspaces for BT.

Though Safety Management Systems (SMS) were proposed for integration into training centers,

this was ultimately removed from the opinion due to insufficient impact data. Nevertheless, documentation traceability and anti-fraud mechanisms remain key focus areas.

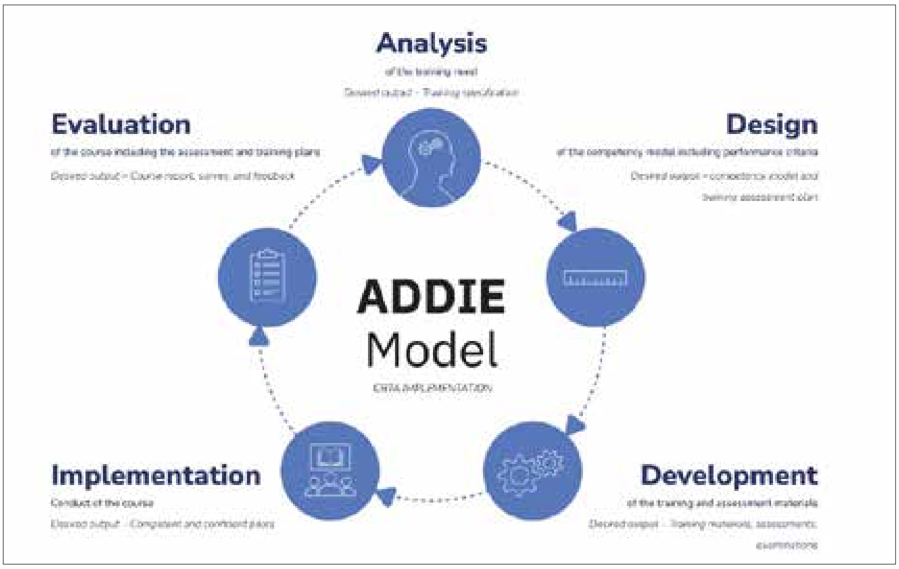
Post-Assembly Developments
In a closed online session following the main event, the President of EAMTC announced changes in Executive Committee (EC) Management. He introduced Fleur van der Vaart as the new General Assembly Manager.

Additionally, candidates for upcoming leadership elections were invited to introduce themselves for three open roles:

- President
- Vice President Government Affairs
- Vice President Internal Affairs

Looking Ahead
The message from Milan was unambiguous: CBTA is not only the future it's the present. By 2027, over 60% of EAMTC-affiliated organizations are projected to adopt CBTA as their core methodology. As EASA continues to refine the regulatory framework, the focus remains on ensuring that aircraft maintenance personnel are not just trained but fully competent, safe, and operationally ready.

Organization	Model Type	Impact
Lufthansa Technik	Hybrid CBTA	+20% diagnostic accuracy in OJT
SWISS MRO	Full CBTA	-35% human-factor-related incidents
EASA Sample (legacy)	Traditional	40% failed basic safety compliance checks



M.Murat BAŞTÜRK
Part -147 Type Training Instructor

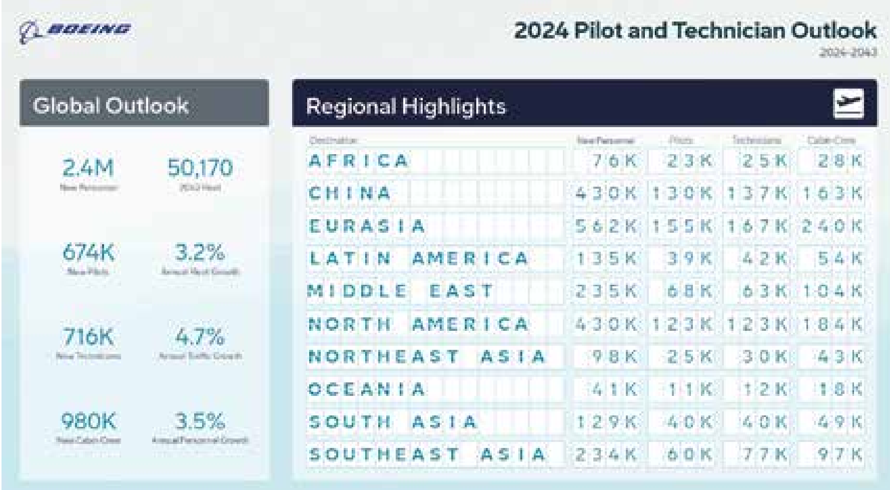
COMPETENCY-BASED TRAINING AND ASSESSMENT (CBTA) APPROACH IN AIRCRAFT MAINTENANCE TECHNICIAN TRAINING

The global aviation industry has gained momentum in its post-pandemic recovery phase, and the need for a qualified workforce is increasing to sustain this growth. Aircraft maintenance technicians, in particular, play a critical role in ensuring flight safety. However, it is predicted that there will be a significant shortage of human resources in this field in the coming years.

According to Boeing's 2024 Pilot and Technician Outlook report, by 2043, approximately 716,000 new maintenance technicians will be needed worldwide. Regionally, the report predicts 123,000 technicians in North America, 167,000 in Europe and Eurasia, 137,000 in China, and 77,000 in Southeast Asia. Similarly, Airbus's 2023 Global Services Forecast indicates a need for approximately 680,000 new technicians worldwide over the next 20 years.

In Türkiye, the General Directorate of Civil Aviation (SHGM) and local aviation authorities expect a more than 35% increase in the demand for maintenance technicians in line with fleet growth. In Europe, EASA (European Union Aviation Safety Agency) emphasizes that the technician shortage will deepen over the next decade, particularly due to increased retirements.

In the face of this growing demand, traditional training systems seem inadequate in terms of speed and effectiveness. Classic training approaches that rely on fixed



curricula, focus on theoretical knowledge transfer, and neglect practical skills, extend training durations and create inconsistencies in the performance of technicians entering the field. Moreover, these systems do not account for individual learning differences and changing industry needs. At this point, the Competency-Based Training and Assessment (CBTA) approach defined in ICAO Doc 10098 offers a paradigm shift in aviation training. CBTA focuses not only on acquiring knowledge but also on using that knowledge in the field at the right time and in the correct manner. This model offers an important solution for effectively, sustainably, and safety-oriented addressing the increasing demand for technicians.

This article will discuss the core principles of the CBTA approach, its impact on aircraft maintenance technician training, its implementation methods, and successful examples, as well as how this model can respond to future industry needs.

What is CBTA?

Competence, according to IATA, is "a dimension of human performance used to reliably predict successful performance." It emerges and is observed through behaviors that activate relevant knowledge, skills, and attitudes required to carry out activities or tasks under specified conditions. Competency-Based Training and Assessment (CBTA) is a performance assessment tool that uses an individual's education, knowledge, and experience to assess their ability to perform tasks. This system can also be used to define future training and development scenarios. It is a modern training and assessment model that focuses on not only ensuring individuals possess knowledge but also on their ability to use the knowledge and skills effectively in real work environments.

In CBTA, learning processes are structured around the learner's performance in the field. This approach emphasizes behavioral and practical competence over theoretical knowledge. One element of CBTA is Evidence-Based Training (EBT). Given the nature of technical personnel's work, this program allows them to assess their future needs in terms of maintaining and enhancing their skills and experience. The advantage of Evidence-Based Training in the technical sector is that candidates can provide evidence of their skills and abilities based on previous work and training, and there are ways to replicate specific scenarios for evaluation.

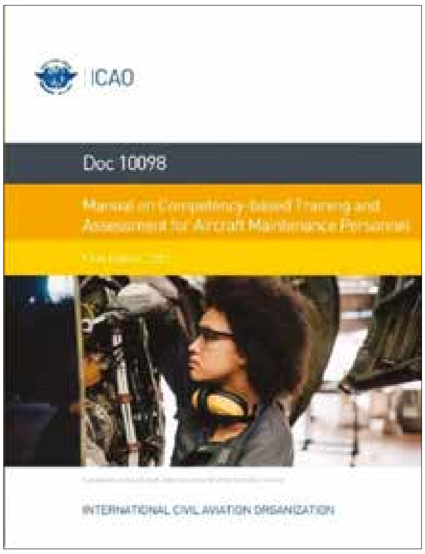
In traditional education systems, fixed curricula and knowledge tests dominate, while CBTA has a structure shaped by individual learning speeds, current competence levels, and operational needs. Training content is adapted to areas where individuals are lacking, and assessments are conducted through practical performance tests and observations rather than written exams.

The key differences between CBTA and traditional training are quite distinct. In the traditional system, learning is assumed to end once the training process is completed, while in CBTA, learning is seen as a continuous development cycle. CBTA considers individual differences, links performance to real field tasks, and supports development with continuous feedback mechanisms.

The advantages of this model include personalized learning, the acquisition of effective skills in a shorter time, the preparation of technicians who are ready for the field, and increased operational safety. Its disadvantages include the complexity of the transition process, the need to retrain trainer staff, and increased resource usage. However, in high safety-critical sectors such as aviation, these investments are more than justified by safe operations and a high-quality workforce.

Current Regulations Related to CBTA
CBTA has long been on the agenda of regulatory authorities, initially developed for flight crews, but specific frameworks for the technical sector have started to be introduced:

- **CAP 1715 – Competency Assessment Guidance Document:** This document, developed in collaboration with the industry, was first published in 2018. It provides guidance on competency assessments for all aspects of the technical sector. It details a series of "non-technical" behavioral skills that complement the technical skills required for responsibilities within the scope of the candidate's job description.
- **EASA AMC1 145.A.30 – Personnel Requirements:** In 2022, EASA published the updated version of the Easy Access Rules for Continuing Airworthiness. This section defines the goals and requirements for organizations. It also includes proposed frameworks for the necessary knowledge elements for specific roles (GM2 145.A.30(e)). EASA clearly states that organizations are responsible for competency assessment. This document provides guidelines for the company's role in the process.
- **ICAO Doc 10098:** The first edition of this manual was published in 2021. The guide provides recommendations for the implementation of CBTA specifically for aircraft maintenance personnel.



Transition Process to CBTA in Aircraft Maintenance Technician Training
For CBTA to be successfully implemented, the transition process must be carried out systematically and with careful planning. The first step is identifying training needs. In this stage, job descriptions, task analyses, and operational requirements are considered to clearly define the knowledge, skills, and behaviors that need to be developed. Following this, task and skill analyses are conducted. The technical knowledge, practical skills, and behavioral competencies required for each task are identified. Based on these analyses, the CBTA curriculum is created, and training programs are designed with a focus on individual development. The training process is supported by practical learning and real-life scenarios. Active learning methods such as simulations, role-playing exercises, and field applications are emphasized. In assessment processes, field performance, observable behaviors, and task performance are prioritized over theoretical knowledge tests.

This process also requires the transformation of trainers. Trainers take on roles not just as knowledge transmitters but also as coaches, observers, and development guides. Continuous measurement and evaluation mechanisms make the learning process dynamic and open to development.

Impacts of CBTA on Aircraft Maintenance Technicians

The CBTA model focuses on developing technicians' not only theoretical knowledge but also their practical skills and behavioral competencies. As a result, technicians not only apply maintenance procedures correctly but can also make effective decisions, communicate, and assess risks in changing operational conditions. Competencies such as situational awareness, stress management, effective communication, and teamwork are actively developed within the CBTA framework. This contributes to a reduction in error rates in maintenance processes, increased job safety, and improved overall operational efficiency.

CBTA also supports the personal development of technicians. Through individual competency maps, technicians can better identify their strengths and areas for improvement and make more informed career plans. This leads to the development of a workforce that is not only highly technically competent but also capable of leadership in the industry.

Successful Implementation Examples

ICAO's CBTA pilot projects in the Asia and Africa regions have shown that training processes can be completed in a shorter time with higher success rates. Training efficiency has increased by up to 20%, and error rates in practical assessments have significantly decreased.

In Europe, Lufthansa Technik has reduced on-the-job adaptation time by an average of 1.5 months through CBTA practices, while increasing the zero-error first job completion rate of new technicians by 12%. In the U.S., Delta TechOps developed

CBTA-based systems under the FAA's AQP program and established task assignment systems based on individual competency scores, leading to significant improvements in maintenance safety.

These examples demonstrate that CBTA not only improves training quality but also directly impacts operational performance and safety standards.

Challenges and Solutions in Transitioning to CBTA

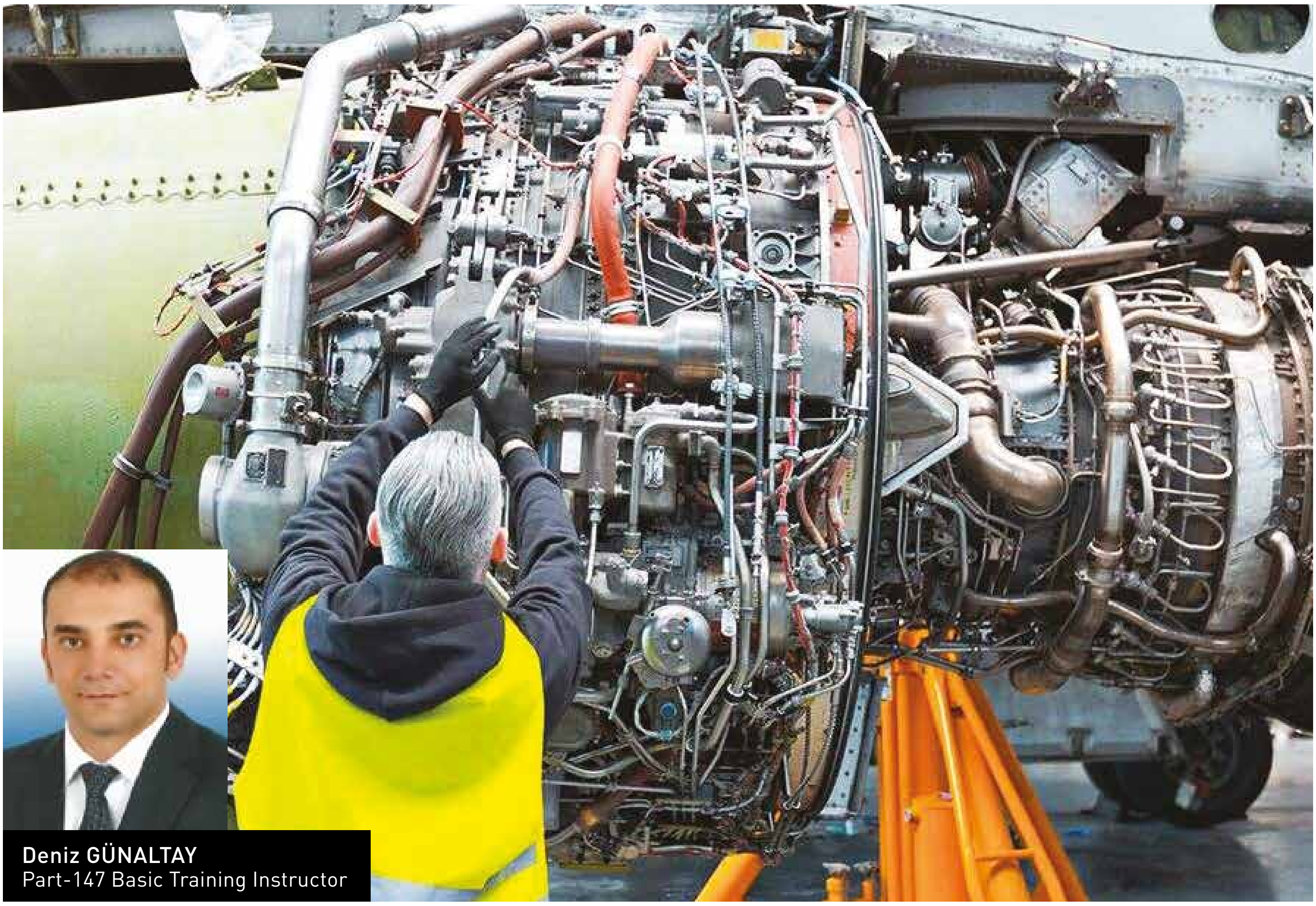
The transition to CBTA brings some challenges. Trainer staff must adapt to the CBTA philosophy and become proficient in observation and evaluation techniques. Additionally, competency and behavioral definitions must be clear and measurable. Ensuring consistency in assessment processes, adopting CBTA across the organization, and establishing digital support systems are also key components

of the transition process. These challenges can be overcome with strong change management strategies, trainer development programs, and effective use of digital technologies.

Looking to the Future: CBTA and Continuous Development in Aircraft Maintenance Technician Training

In a world where digitalization and technological advancements are accelerating, CBTA is a model that can adapt to this transformation due to its flexible structure. Artificial intelligence-assisted training systems, individual development tracking platforms, and data-driven evaluation methods will further strengthen the impact of CBTA. The future profile of aircraft maintenance technicians will include not only technical knowledge but also the ability to adapt, think analytically, and actively contribute to safety culture. CBTA will continue to play a central role in training the next generation of professionals.

Competency-Based Training and Assessment (CBTA) provides a sustainable and effective solution to the human resource shortage facing the aviation industry. This model not only enhances individual performance but also strengthens the safety culture across the industry and supports operational excellence. Investment in CBTA is an investment in the company, its employees, and future planning.



Deniz GÜNALTAY
Part-147 Basic Training Instructor

BASIC HYDRAULIC SYSTEMS IN MODERN AIRCRAFT

In aircraft, hydraulic systems are systems that use pressurized fluids to efficiently transmit energy. These systems draw power from the engines and convert it into hydraulic energy. Hydraulic systems are used to control various aircraft functions, including landing gear, brakes, wings, spoilers, and flight control surfaces.

What is a Hydraulic System?
Aircraft hydraulics is a system that transmits energy or power efficiently from one point to another using pressurized fluid. Hydraulic systems take engine power and convert it into hydraulic power through a hydraulic pump. This power can be distributed throughout the aircraft via hydraulic lines. Hydraulic power can be reconverted into mechanical energy via an actuator or turbine.

Hydraulic systems are widely used in aircraft to control structures such as landing gear, brakes, wings, spoilers, and flight control surfaces. In basic terms, a hydraulic pump converts mechanical power into hydraulic power. An actuator cylinder, or simply actuator, converts hydraulic power into mechanical power. If an electrical system were used instead of a hydraulic system, the pump would be replaced by a generator and the actuator cylinder by a motor.

An actuator can convert hydraulic power into linear or rotational motion. It includes a reduction gear to lower the rotational speed to the required amount. A flight control surface must respond instantly to inputs, which a hydraulic system can easily achieve. In an electric system, a rotating armature must come to a complete stop and then reverse direction; otherwise, it could burn out. In a hydraulic system, this issue does not arise as it doesn't require a motor.

In a landing gear, a hydraulic motor can generate sufficient power to retract or extend the gear even under aerodynamic loads and air resistance. Previously, systems used steel cables connected through pulleys between the control mechanism (like pedals) and control surfaces (like rudders). These cables were affected by temperature-induced expansion. Hydraulic systems, being closed systems (not exposed to the atmosphere), are not influenced

by temperature in the same way, enabling more reliable movement. This allows for better aircraft control and reduced response delay between pilot input and control surface reaction.

Advantages and Disadvantages of Hydraulic Systems

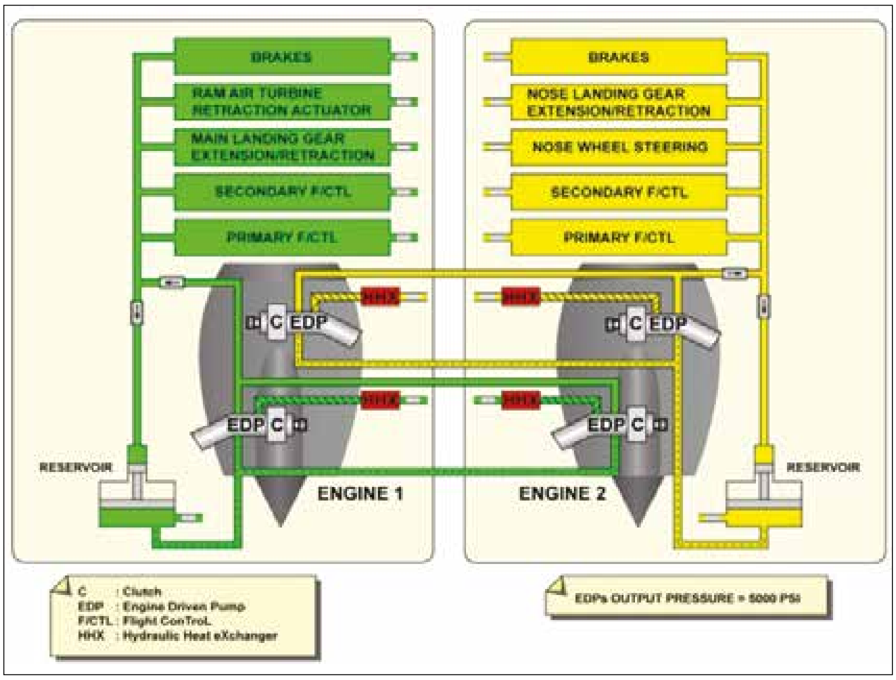
Advantages:
Hydraulic systems in aircraft offer several advantages compared to pneumatic, electric, and mechanical systems. For instance, they have a high power-to-weight ratio, meaning a small and lightweight pump and actuator can produce a large amount of force and torque. This not only reduces system weight and size but also enhances aircraft performance and fuel efficiency.

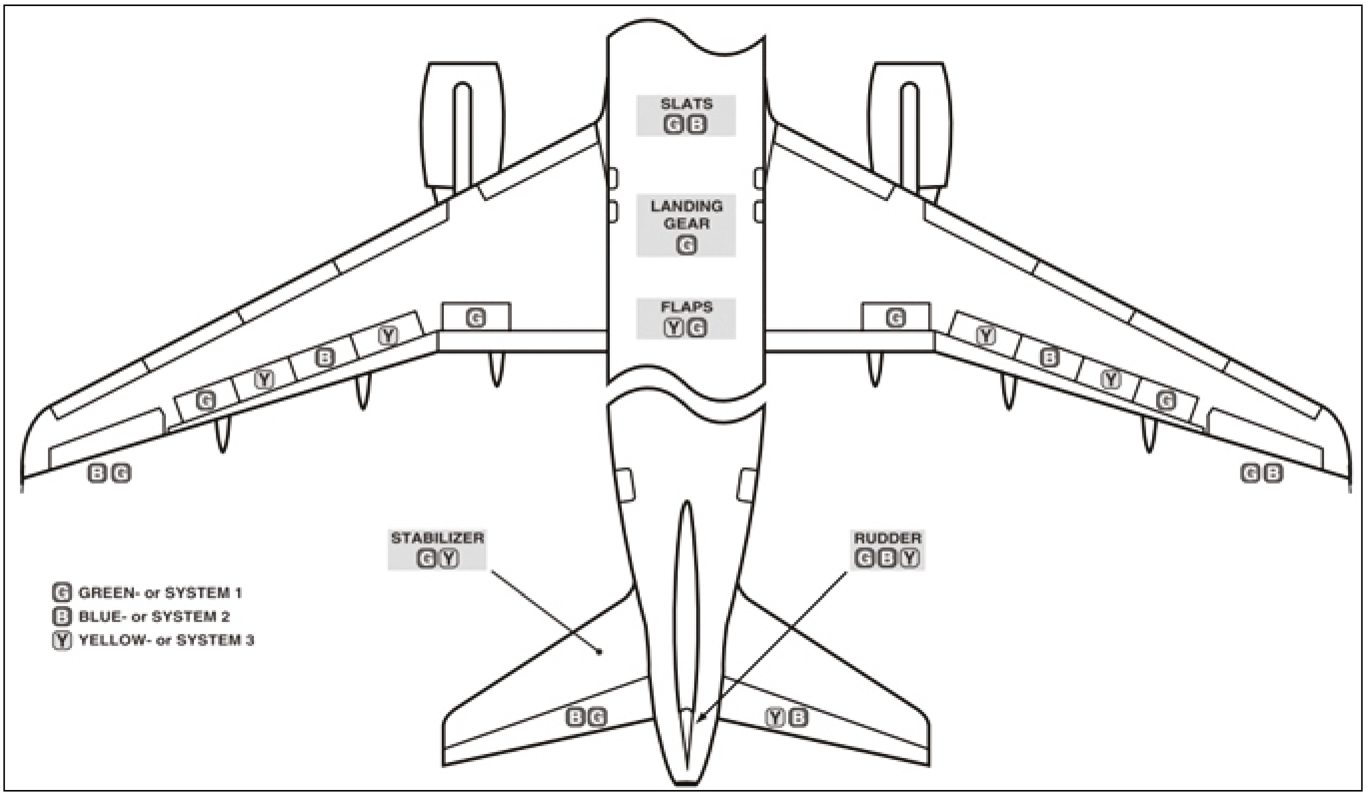
Additionally, hydraulic systems are highly flexible and adaptable, allowing for easy configuration and modification to suit different functions and requirements. They can also be integrated with electronic and computer systems to improve control and feedback. Moreover, hydraulic systems provide high safety and redundancy due to multiple fail-safe features, such as pressure regulators, relief valves, accumulators, and dual or triple pump configurations. These features ensure system safety and reliability during failures or emergencies and allow operation at reduced or partial capacity when necessary. They can respond quickly to demand and practically generate unlimited power.

Disadvantages:
Hydraulic systems require pumps, reservoirs, actuators, valves, and fluid lines, which increase weight. More components mean higher maintenance and complexity. Leaks can reduce system efficiency and lead to failures. Hydraulic fluids under high pressure are flammable and increase fire risk. Leaks and pressure loss require regular inspection. Fluid contamination may cause component wear, corrosion, or failure. Spilled hydraulic fluid poses environmental hazards and is difficult to clean. Disposal of used fluid requires waste management and strict environmental regulations.

Fluid friction generates heat, necessitating cooling systems. Excessive heat can degrade fluid properties and reduce system

Hydraulic systems are systems that use pressurized fluid to efficiently transmit energy. In aircraft, engine power is converted into hydraulic power through hydraulic pumps, and this power is distributed throughout the aircraft via pipes. Hydraulic power is then converted into mechanical power by actuators. Hydraulic systems are widely used in aircraft to control landing gear, brakes, wings, spoilers, and flight control surfaces. Compared to electrical systems, hydraulic systems provide faster and more reliable responses, as they are not affected by temperature changes and offer more precise control with less delay.





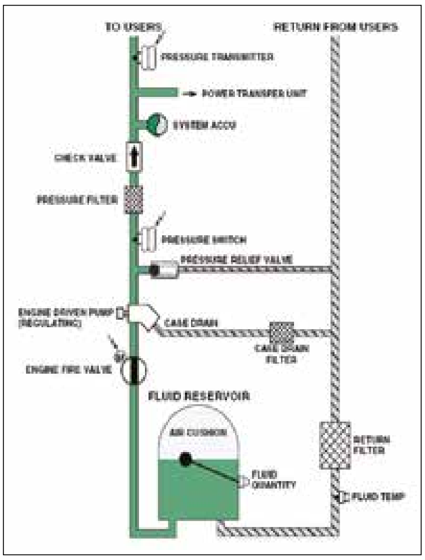
performance. Hydraulic pumps can be noisy and contribute to cabin noise. High-pressure fluid flow may cause vibrations, affecting comfort and component wear. Hydraulic systems consume energy even when not in active use. Seals, hoses, and pumps degrade over time and require periodic maintenance. High-pressure systems may cause fatigue and wear in metal components.

Hydraulic System Components

Hydraulic systems are essential in modern aircraft to operate various critical components requiring high force and precision. These include landing gear extension/retraction, movement of main and secondary flight control surfaces (aileron, elevator, rudder, spoilers, and flaps), braking systems, and cargo doors.

In most modern aircraft, major components such as accumulators, engine-driven hydraulic pumps, electric pumps, reservoirs, filters, relief valves, fill valves, and related equipment are centralized in easily accessible hydraulic service bays for routine maintenance.

The reservoir in a basic hydraulic system stores hydraulic fluid, usually



mineral- or synthetic-based. The pump draws fluid from the reservoir and pressurizes it, sending it to a valve. The valve regulates flow and direction of fluid to the actuator, which converts hydraulic pressure into mechanical motion and may be a motor or servo. The fluid then returns to the reservoir through a filter and cooler.

In case of fire, fire shutoff valves in the cockpit can cut off all flow (fuel, hydraulic, air). These valves may be located in the supply lines of pumps in every aircraft type.

A pressure switch warns the cockpit if pump pressure is too low by activating a low-pressure light. A pressure relief valve opens when pressure is too high to protect the system or components from damage. A pressure filter removes contaminants or metal particles from hydraulic fluid to prevent system failure. A check valve prevents fluid from flowing back to the pumps crucial in case of pump or engine failure in flight.

After passing through check valves, the fluid goes to a manifold. The hydraulic manifold is a metal block onto which flight control and landing gear system components are mounted. The fluid is routed to system parts via distribution ports. Typically, pressure relief valves, system pressure sensors, and switches are mounted on the manifold.

To reduce pressure spikes or dampen fluctuations, nitrogen-charged accumulators are used. The fluid returns to the reservoir via a return line and return filter, forming a closed-loop main system.

The case drain collects small internal leakage flow and returns it to the reservoir via a filter and sometimes a temperature sensor. The case drain filter must be checked frequently as it cools the pump bearings and indicates potential bearing failure. An increase in case drain temperature may signal internal leakage, which can lead to fluid overheating and performance loss.

Hydraulic Fluids
Aircraft systems use hydraulic fluids based on vegetable, mineral, or synthetic oils with the following characteristics:

Provide adequate lubrication.
Viscosity must be low enough to minimize friction in pipes and allow high-speed pump/motor operation, but high enough to prevent leakage and reduce fluid weight.

Prevent internal corrosion.
Operate across a wide temperature range.

Fluids are color-coded for identification.
Unless stated otherwise in the AMM, fluids with different properties must never be mixed.

During servicing, it is essential to follow current AMM procedures.
Phosphate-ester-based synthetic fluids are commonly used in modern aircraft due to their fire resistance and wide operating temperature range. Skydrol and Hyjet are the most commonly used hydraulic fluids.

Hydraulic System Pumps
Pumps pressurize the hydraulic fluid. Generally, there are three types of pumps in a hydraulic system: Engine Driven Pumps (EDP), Electric Motor Pumps (EMP), and Hand Pumps.

Engine Driven Pumps (EDP):
In twin-engine aircraft, each engine has a pump that supplies flow and pressure to the hydraulic power system. These are the main pumps or engine-driven pumps. They are usually variable displacement pumps, which adjust flow and pressure without needing a pressure regulator. A large-diameter supply line, pressurized reservoir, and minimal components between the reservoir

and pump (except fire shutoff valve) are essential for proper supply.

The EDP is the primary source of hydraulic power and is mounted on the engine accessory gearbox, driven by the engine. Its speed depends on engine RPM higher RPM increases pump speed and flow, and vice versa. Aircraft manuals specify two flow values: at idle and at maximum engine thrust.

Most modern aircraft (A320, B737NG/MAX) operate at 3,000 psi hydraulic pressure. Advanced aircraft like the Boeing 787 use systems operating at 5,000 psi to reduce weight and improve efficiency.

Electric Motor Pumps (EMP):
Used mainly for ground servicing and maintenance (e.g., operating cargo doors). May be gear or variable piston type. In some aircraft, they act as main or backup pumps, operating continuously and supplying fluid to their hydraulic systems. Powered by the aircraft's three-phase electrical system, EMPs are typically located near landing gear bays. Most aircraft have two electric pumps, which require cooling fans.

Hand Pumps:
Some aircraft have manual hand pumps for emergency use or ground operations. These are dual-action pumps (deliver fluid on both strokes). As the piston moves upward, fluid enters the cylinder through a non-return valve (NRV). Simultaneously, fluid above the piston is discharged through a check valve. On the downward stroke, the inlet valve closes, and the transfer valve opens to allow fluid to move through the piston and discharge the excess via the outlet. If outlet pressure exceeds a set safety valve threshold, the discharged fluid is redirected to the inlet.

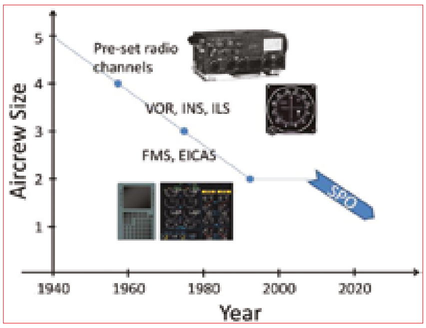
PhD. Cpt. Plt. M.Melih BAŞDEMİR

SINGLE PILOT OPERATIONS

Single-pilot aircraft are not only about cost advantages they also serve as a powerful driving force for the development of next-generation, human-centered aviation technologies. However, this transformation is just as much about human factors, passenger confidence, and organizational structures as it is about technology.

The development of single pilot flight decks will provide the economic and operational impetus for the development of a range of advanced technologies for implementation in the next generations of commercial aircraft, irrespective of how many crew are ultimately on board. In a single crew airliner, increased levels of sophisticated automation and/or autonomy will be necessary to reduce the demands on the pilot in times of high workload or to ultimately take control of the aircraft in the case of pilot incapacitation. To do this there needs to be the appropriate allocation of work between the pilot and the aircraft to ensure safe and efficient flight. Single crew aircraft flight decks will provide a catalyst for the development of a new range of human-centred technologies supporting new airline operational concepts. The human factors requirements will likely be the prime driver, not the hardware and software technologies.

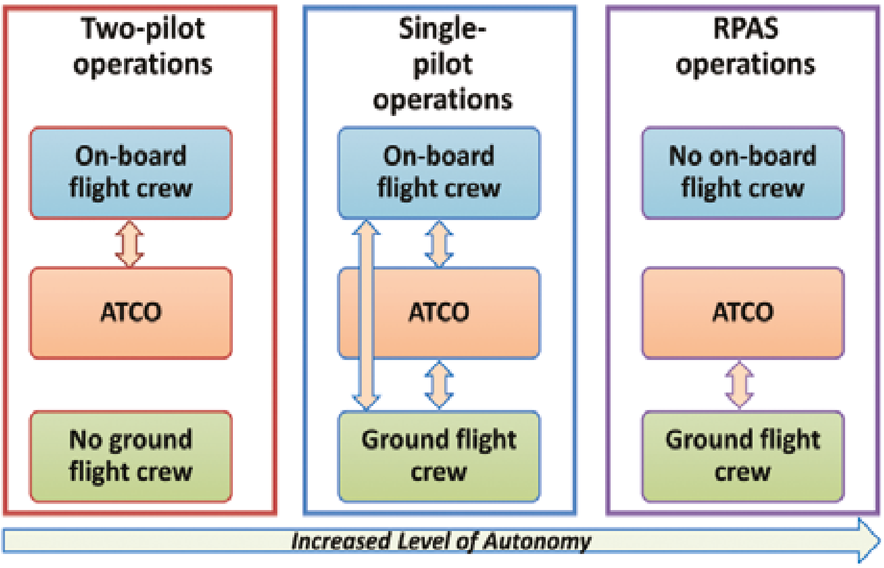
The trend in flight deck design over the past half century has been one of progressive 'de-crewing'. The common flight deck complement is now that of two pilots, but only 50 years ago, it was common for there to be five crew on the flight deck of an airliner. Now, just two pilots, with much increased levels of assistance from the aircraft, accomplish the same task. However, at the moment, by regulation and by law, two pilots is the current minimum flight crew complement for a large commercial aircraft. Nevertheless, there are signs that this may change in the future. In 2018 as part of the 'FAA Reauthorization Act of 2018' put in front of the US Congress, it was proposed that the 'Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate that describes… a review of FAA research and development activities in support of single-piloted cargo aircraft assisted with remote piloting and computer piloting'. Such a change



in legislation would clear the way for the introduction of a FAR/CS part 25 single pilot passenger aircraft, but initially in cargo operations

Originally the main driver for single pilot operations was financial, but issues relating to a potential shortage of commercial pilots in the near future now play a major part. The air transport industry struggles with profitability, with constant downward demands on pricing and unpredictable, fluctuating fuel costs. The IATA (International Air Transport Association) report for the second half of 2016 shows that the average return fare in 2017 (before surcharges and tax) was $351, down from $407 in 2015, and it was actually 68% lower than in 1995. World-wide post tax profits have declined from $9.89 (per passenger) in 2015, to $7.546. Airline personnel costs vary between about 11% of operating costs to nearly 25%, depending upon aircraft type, sector length and how much activity is outsourced: the crew themselves can represent up to 13% of operating costs (excluding fuel and propulsion). Halving the number of pilots has the potential to produce significant cost savings, especially in smaller regional aircraft operated on shorter, 'thinner' routes which may not be economically viable with higher capacity airliners. The direct operating costs attributable to flight deck crew rise as aircraft size decreases. It is estimated that for an airliner with two pilots and three cabin crew, the flight deck represents 67% of crew costs; this rises to around 76% in an aircraft with fewer than 100 seats which requires only two cabin crew.

The challenges for this type of aircraft are essentially the same as those for any aeroplane carrying passengers. It must be at least as safe as the equivalent existing multi-crew aircraft but from a pilot perspective it must also be more error tolerant. It must not impose higher levels of workload on its single pilot than those in the equivalent multi-crew aircraft, but it must promote the same level of pilot understanding and awareness of



issues such as the airspace picture, tactical and strategic flight planning, aircraft system awareness and the flight envelope. It must be capable of operating in all categories of airspace and at all airports without requiring special assistance from Air Traffic Control (ATC). Many aspects of the current ATC-Air-pilot operational relationship are predicated on a two-person flight deck: single pilot types often require special handling to avoid overloading the crewmember with lengthy RT exchanges. However, SESAR, NEXTGEN and similar initiatives which will support increased connectivity have the potential to aid single pilot operations in the future in this respect via the use of non-voice ATC communication. From an airline's perspective its overall operating costs must ultimately be lower than that of a multi-crew aircraft. This includes acquisition, training, maintenance and operational support. Initial costs during the introduction of the technology may be increased but to be a viable proposition, these must ultimately be reduced. It is not just about the technology required to build the aircraft, it is about operating it. However, the biggest challenge may have nothing to do with piloting the aircraft or the safety of its technology. Referring to pilotless commercial aircraft, John Hansman, Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology commented 'the issue has never been 'Could you automate an airplane and fly it autonomously?' The issue is

"'Could you put paying customers in the back of that airplane?'" The same basic question applies to single crew aircraft: will people pay to fly in it? Recent research on passenger opinion emerging from the USA has produce a resounding 'maybe…"

Various technological approaches are being explored for the development of a single pilot aircraft. Some focus upon the development of much increased levels of automation (for example, intelligent knowledge-based systems, autonomous systems and adaptive automation). Other approaches adopt a more technologically-cautious approach to using a large amount of on-board computing. These use a distributed systems-based design philosophy, utilising a great deal of extant technology derived from single seater military aircraft and UAS (Uninhabited Aviation Systems) technology. It would be inappropriate to characterise these approaches as 'either/or' options: there is a great deal of commonality in the technologies to be developed and the operational challenges that airline operators would face. However, it is useful to characterise the approaches to developing a single crew aircraft in this way to illustrate the unique advantages and challenges faced by each technological strategy.

Risk	Transition	Risk Class
Reliability of non-mature technology	There are already solutions in business jet market (e.g., Embraer Phenom 300)	Medium
Safety issues (physical and cyber)	Automation may provide higher levels of safety (reduced human error)	Medium
Public opinion: acceptance of flying with only one pilot	Progressive implementation	High to medium
Cost and difficulty of airworthiness certification	Moderate compared to RPAS and potentially serving as a transition case	High to Medium
Overload of the pilot	Higher level of automation will contribute to decrease the pilot's workload	Medium
Cost of implementation (training and avionics)	Economic efficiency (same number of pilots can fly more aircraft)	Low

Autonomous Systems Approach

Early approaches to the development of a single crew aircraft mostly utilised onboard technology: the emphasis was on adaptive automation and decision aids in the form of 'intelligent co-pilots' or 'cockpit assistants'. Most of these systems were developed from military programmes where the pilots experienced an array of threats and were under periods of extremely high workload. These systems typically monitored the actions of the pilot comparing them against data from the position of the aeroplane, status of the onboard systems and external environmental factors. Algorithms were employed to determine if there was any difference between the expected and actual states.

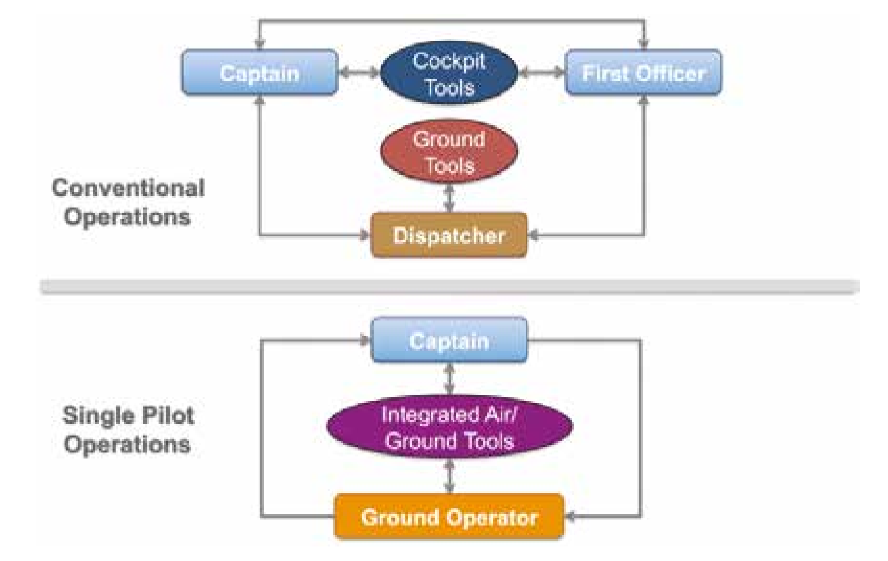
The distributed crewing design approach utilises a great deal of extant technology. This design philosophy has been adopted by the UK Future Flight Deck and Open Flight Deck programmes and by NASA in the US for its single crew commercial aircraft concept. This concept regards the single crew aircraft as one part of a wider system consisting of several elements, comprising the aircraft itself (including pilot), and a ground-based component including a 'Second Pilot'/'Ground Pilot' support station (or a 'Super Dispatcher' in the NASA concept16); real-time engineering support and navigation/flight planning support facility. In this type of system, the co-pilot is not replaced by on-board automation or autonomy, they are displaced.

The Role of the Human

The common theme between automated and autonomous systems is the need for the human to set the high-level goals and to monitor the system. It is a misconception, not helped by terms such as, 'unmanned', that there is no human involvement required. The modern flight deck, while possessing a high degree of automation, still requires a large degree of supervision and monitoring from the flight crew, and the pilots need to be able to intervene when external factors require changes to the initial plan for the flight. The same will be true of the single pilot airliner, irrespective of how the technology is implemented. Even in systems with a lesser or greater degree of autonomy it is important to recognise that the role of the human is not only critical in terms of supervising the system, but also providing key inputs that improve the system outcome. The caveat here is that the automation and/or autonomy should be built around what the human is bad at (for example, tasks that require long periods of vigilance, mental fatigue, mental overload) and also what the human is good at (for example, tactical decision making) – not just the former.

Operational and Organisational Considerations

In addition to the technological, economic, regulatory and the societal acceptance of the single pilot concept there is one further major issue to address: the organisational aspects of the operation of such an aircraft in airline service. Removing one of the pilots has ramifications across a wide range of organisational areas. Taking a human-system integration approach, such redistribution of tasks raises substantial issues in areas such as manpower, personnel selection and training. For example, a key manpower question is how many people will be required on the ground to support the pilots in the air (in either aircraft configuration)? A number of personnel selection issues arise. In the current system, pilots initially train and qualify as co-pilots. They become eligible for selection and training as captains only after they are deemed to have gained sufficient experience in the co-pilot role. As the co-pilot role ceases to exist in a single pilot concept, the question arises concerning how single pilots would gain the necessary experience to operate safely as Captain and how they would be trained? All pilots would effectively have to be Captains. An aircraft commander is not just responsible for flying the aircraft but also for making sound safety decisions concerning operations, crew management and passenger situations. The question also arises as to what experience and qualifications would be required for ground-based personnel and whether they need to be recruited from outside the existing airline resource pool?



A Design Challenge

The single crew airliner is still probably 20 years away, however with the legislative developments in the USA it is possible that the single pilot cargo aircraft may be closer to becoming a reality. This will invariably pave the way for single crew airline operations and provide the opportunity to develop the technology required. Whether or not single pilot operations ever enter commercial service, as a design exercise the single pilot aircraft will provide the opportunity for a re-appraisal of the pilot's tasks on the flight deck, taking a truly human-centred approach. It will almost inevitably derive new pilot-support requirements for development by the avionics companies which will be applicable for single and multi-crew aircraft. It will provide a test bed for new approaches to safety, certification and design processes, and help to address options for the safe recovery of an aircraft in the case of pilot incapacitation. And far from decreasing the need for pilots it may actually increase the need. Parimal Kopardekar, Project Manager for the Concepts and Technology Development Project at NASA Ames Research Center, noted that single pilot operations are 'a polarizing topic20. He suggested that if single crew operations could be implemented the cost per passenger, per mile would decrease and as a result ticket prices would

concomitantly fall which would result in an increase in demand, potentially requiring more pilots and more aircraft.

The key drivers for further reductions of flight deck crew in commercial operations will likely come from sources other than technology (costs, demographics, demand and crew availability).

The move towards more-automated or autonomous cockpits will be an opportunity to further increase aviation safety and support new developments in key areas of cockpit technologies.

The effort required to enable this must not be underestimated and the temptation to consider in any way the possibility of replacing further crew without a full redesign of the cockpit flight control systems should be avoided.

Ersan YÜKSEL
Senior Avionics Engineer
Istinye University

THE SONG THAT NEVER ENDS: A TRIBUTE TO AIRBUS A300/ A310 AIRCRAFT

The saying "If the old were in demand, the flea market would be crowded" is not always true. The A310 aircraft, which can be described as a shorter and more modern version of the A300 aircraft, the first wide-body aircraft produced by Airbus, is still in demand in Iran.

In fact, Turkey also has an important role in the A310 having an important place in Iranian civil aviation.

Turkish Airlines has ordered a total of fourteen A310 aircraft for its fleet, making it the fourth largest order for this aircraft.

Airbus A300 aircraft are the ancestors of Boeing B767, B777,

B787 and Airbus A330 and A350 aircraft, which we are very familiar with today and which carry the passenger load of long-range routes.

Prior to the A300, wide-body aircraft with three jet engines, such as the Douglas DC-10 or Lockheed Trident, were being produced as a competitor to wide-body aircraft with four jet engines, such as the B747.

The A-300, the first wide-body aircraft with two jet engines, was also the first aircraft produced by Airbus. Founded by Germany and France in 1970, the Airbus partnership was joined by Spain in 1971 and the UK in 1979.

Airbus delivered its first aircraft, the A300, to its first customer, the French airline Air France, on May 30, 1974. The world's first wide-body passenger aircraft with two jet engines was made possible by the development of jet engine technology.

ETOPS, which allows twin-engine jet airliners to fly long distances between two airports, owes its emergence to the fact that the frequency of jet engine failures has been greatly reduced thanks to improved production and maintenance technologies.

For ETOPS, the first condition is that when one of the two engines fails, the only engine that remains intact must be powerful enough to continue to carry the aircraft. The second condition is to ensure that the probability of failure of both engines is very small. In addition, the APU must be active, special fire warning and extinguishing systems, generators must not be malfunctioning, etc. for ETOPS aircraft.

Airbus has produced A300 aircraft for 33 years. Of the 561 aircraft produced during this period, 235 of them, nearly half of them, are still in active use. The wide body, range, speed and economy of the aircraft with its two engines have encouraged the conversion of A300 passenger aircraft that have reached the end of their economic life into cargo aircraft. Thus, these aircraft were saved from being scrapped.

Following the interest in the A300, Airbus started working on the A310 passenger aircraft, which is shorter but more advanced than the A300, and delivered its first aircraft to Lufthansa and Swiss Air in 1985.

Airbus produced A310 aircraft for 22 years. Of the 255 aircraft produced during this period, 61 are still in active use.

Turkish Airlines was among the first airlines to use the airplane. The aircraft, which served in the Turkish Airlines fleet for a long time and enabled the opening of many long-range routes from Singapore to New York, completed their duties after the introduction of modern A340 aircraft into the fleet.

Turkish Airlines converted three of the most recent additions to the fleet, TC-JCV, TC-JCY and TC-JCZ, into cargo aircraft. The other aircraft were sold to Iranian airlines Iran Air and Mahan Air.

The Iranian airlines were satisfied with these aircraft and the difficulty they had in obtaining new aircraft from the US and Europe led to the continuing life of these aircraft in Iran.

This article addresses Iran's new airline Ava Airlines, which started operations in February 2024, made its first flight from Tehran to Istanbul on August 1 with a newly delivered Airbus A310 aircraft. Although the airline is new, the route is new and the aircraft is new, the aircraft itself is not new.

The aircraft with tail mark EP-RBD is 34 years old. The aircraft, which was in the fleet of Uzbekistan for many years with the tail mark UK-31002, was transferred to Tajikistan's Asia Sky airline in July 2023. The plane did not fly here. It was leased to Iran Air. Later, the aircraft traveled around different Iranian airline companies, but the tail number EP-RBD remained the same. Similar to how new car buyers take a test drive at the dealership, the plane flew for a short time with Qeshm Air and Meraj Air and then joined the fleet of Ava Airlines to make its first flight between Tehran and Istanbul.

The average age of the passenger aircraft fleet of Ava Airlines, based at Tehran's Mehrabad airport, is 32 years old. The fleet includes a 34-year-old A310, a 34-year-old Mc Donnell Douglas MD-83 and two 31-year-old B737-500 passenger aircraft.

Taking into account flights to both Istanbul airports, Tehran is by far the leader among foreign cities sending the most passengers to Istanbul.

In May 2024, there were over 20 daily round trip flights from Tehran to Istanbul airports. These flights carried a total of 1210 passengers per day in each direction and a total of 75000 passengers per month on both directions.

Three of the airlines operating flights between Istanbul and Tehran are Turkish airlines and nine are Iranian airlines.

Turkish Airlines flies to Tehran from Istanbul airport with A321ceo, A330-200/300, 737-800, 737-900ER aircraft. AJet airline flies to Tehran from Sabiha Gökçen airport with A320neo aircraft. Pegasus airline flies to Tehran from Sabiha Gökçen airport with A321neo aircraft.

All nine Iranian airlines fly from Tehran to Istanbul airport. They do not fly to Sabiha Gökçen airport on the Anatolian side.

It is impressive to see that the aircraft used by Iranian airlines on their flights to Istanbul include Airbus A310 as well as Airbus A300 aircraft.

In addition to Ava Air's Airbus A310, Iran Air uses Iran Air Airbus A300-600 and A310-300, Iran Airtour Airbus A310-300, Qeshm Air Airbus A300-600, Mahan Air Airbus A310-300, Meraj Airlines Airbus A300-600 and Yazd Airlines Airbus A310-300 on flights between Tehran and Istanbul. Iran Aseman and Mahan Air also use A340-300 aircraft on these flights. Meraj Airlines also uses A320ceo aircraft in addition to the A300-600 aircraft.

Arif TUNCAL PhD
Aviation Research Association

TECHNOSTRESS IN THE DIGITAL ERA

The rapid advancement of digital technologies has led to a fundamental transformation in modern work environments, re-shaping the way employees interact with technology. These advancements have brought significant opportunities for enhancing efficiency, communication, and safety, especially in sectors like aviation. However, alongside these advantages, new challenges have emerged, particularly the psychological and organizational stressors associated with constant technological changes.

One of the most prominent issues is technostress, a specific type of stress induced by the fast-pace of technological evolution and the pressure to adapt to new digital systems. In technology-dependent industries such as aviation, understanding and managing technostress is crucial, as it can directly impact employee well-being, operational safety, and efficiency. As digitalization continues to accelerate, the need for effective strategies to mitigate technostress and support employees in adapting to new technologies becomes increasingly important. This is particularly true in aviation, where the integration of artificial intelligence (AI), automation, and complex digital systems further complicates the work environment, intensifying both the cognitive and emotional demands placed on professionals. In this context, as the effects of digitalization on the workforce become more pronounced, the rapid evolution of technology and the constant need for adaptation introduce new psychological challenges, such as technostress, particularly in technology-dependent sectors.

Digitalization represents a fundamental transformation process that is centered on technology. Its origins are rooted in the rapid development of digital technologies and their increasing spread into all areas of life. In the European Union, for instance, the employment rate of ICT (Information and Communication Technologies) staff in 2025 will increase by 64% compared to 2018 [1], reflecting the scope of this digital transformation. Alongside its economic impacts, digitalization has also produced significant consequences on workers' psychosocial working environments. These consequences can be either negative, by increasing stress related to technology, or positive, by improving work organization and reducing some psychosocial risks through the use of beneficial digital tools. The use of ICT provides several advantages for employees, including increased productivity, instant access to information, enhanced safety, remote working opportunities, environmental benefits, access to customer data, and the ability to deliver innovative services. However, the disadvantages include longer working hours, work-life imbalance, and health problems, including stress. Another significant disadvantage is the constant need for updates and adaptation to technological advancements, which creates complexity and stress for employees.

Technostress refers to the psychological and physiological negative responses that individuals may experience when working intensively with ICTs [2]. It is a specific type of stress caused by the fast-paced technological changes and the pressure to use digital technologies effectively. As digital technologies evolve and become more embedded in professional and personal life, the levels of technostress experienced by employees tend to increase. In particular, the fear of falling behind in the internet age has created a compulsion for individuals to stay continuously connected online, leading to problematic behaviors such as techno-addiction, which in turn exacerbates technostress.

The concept of technostress was first introduced by Craig Brod in 1984, who defined it as a modern adaptation disease resulting from an individual's inability to cope with new computer technologies in a healthy manner [3]. Technostress manifests when individuals perceive that they lack the skills required to use computers effectively at work or when they feel overwhelmed by the constant demands for technological adaptation. Several factors contribute to the emergence of technostress. These include technical problems related to human-machine interaction, inadequate user-friendliness of systems, and the need to acquire new skills. Rapid changes in technology, insufficient employee training, increased workload, lack of standardization in technologies, and the unreliability of software and hardware systems also play a crucial role.

In recent years, developments in automation, data analytics, AI, and machine learning have further expanded the capabilities of technological systems. While these technologies offer remarkable benefits in daily life and professional environments, they also bring significant challenges. The Fourth Industrial Revolution, a neologism describing the rapid technological advancements of the 21st century, has intensified the integration of digital technologies into workplaces. Although this integration often enhances efficiency and productivity, it also generates negative outcomes, such as environmental impacts, health issues, and psychosocial stress, including technostress. Using complex and constantly evolving technological systems can be inherently stressful. This paradigm shift is not easily internalized by employees, leading to feelings of anxiety, hesitation, and frustration, and ultimately resulting in higher levels of technostress. Technostress is multidimensional, affecting employees' physical, emotional, and mental well-being. In many cases, inadequate training and lack of ongoing support activities after the implementation of new technologies

contribute significantly to the development of technostress. While technology is generally perceived as a tool that accelerates processes, it also imposes new responsibilities on individuals and creates expectations for continuous adaptation. Employees are increasingly expected to update their technological skills to keep pace with the changing environment. This pressure leads to psychological challenges such as anxiety and stress. Stress, in general, results from external and internal pressures that create a feeling of being overwhelmed. It can manifest through emotional reactions such as tension, worry, and fear. Technostress, as a modern stress type, originates from the difficulty of adapting to computer technologies and the inability to manage them effectively. It affects individuals by causing anger, restlessness, and anxiety, as well as physiological symptoms [4-6].

Technostress is commonly explained through five dimensions. Techno-overload describes situations where technology forces employees to work faster and manage multiple information flows, leading to stress, interruptions, and loss of focus. Techno-invasion refers to the expectation of being constantly available, which disrupts the balance between work and personal life and causes frustration. Techno-complexity occurs when employees feel inadequate due to the complicated features and terminology of new technologies, creating stress. Techno-insecurity is related to the fear of losing one's job to others who are more skilled in using technology, increasing anxiety. Techno-uncertainty reflects the discomfort caused by frequent updates and changes in technology, leading to ongoing stress and frustration [6].

From a theoretical perspective, technostress can be related to several models. Technology Acceptance Model (TAM), developed by Davis in 1989, is among the most referenced frameworks [7]. According to TAM, the acceptance and use of technology by individuals are influenced mainly by two factors: perceived usefulness and perceived ease of use. If an employee perceives a technology as useful and easy to use, the likelihood of adopting that technology increases. However, when technological systems are perceived as complex or non-user-friendly, technostress levels tend to rise. In addition to TAM, Person-Environment Fit Theory can also be applied to explain technostress. According to this theory, stress occurs when there is a misfit between the individual and the environment [8], including technological environments. A mismatch between technological demands and an individual's abilities or resources results in stress responses, including technostress. The Transactional Model of Stress and Coping proposed by Lazarus and Folkman also offers a relevant framework [9]. This model suggests that stress is the result of the appraisal of demands as exceeding one's resources and capabilities. When employees perceive that they cannot cope with technological changes or the pressures associated with ICTs, technostress emerges.

Technostress has significant effects on both individual employees and organizations. On the individual level, technostress often causes emotional and psychological problems [2]. Employees may experience increased anxiety, fear, and feelings of doubt when they are unable to cope with new technologies. Continuous exposure to complex systems can lead to mental fatigue, reduced well-being, low morale, and a lack of motivation. Many employees facing

technostress report a decline in job satisfaction and a decrease in overall work productivity. In addition, technostress can negatively affect personal performance, making it harder for employees to meet work expectations. Over time, these effects may also weaken organizational commitment, causing employees to feel less connected and loyal to their companies. From an organizational perspective, technostress can have even broader consequences. Research shows that it reduces job satisfaction, lowers productivity, and decreases organizational loyalty among employees [4, 6] . Workers affected by technostress are more likely to experience burnout, which leads to high turnover intentions. In other words, many employees may plan to leave their jobs due to the continuous pressure and stress caused by technological demands. Moreover, technostress has been linked to various physical health problems, such as sleeping difficulties, headaches, irritability, stomach issues, and cardiovascular diseases. These health problems not only reduce individual performance but also increase organizational costs related to absenteeism, medical leave, and healthcare support.

The aviation sector is a socio-technical system characterized by intense human-technology interaction [10]. The safe operation of thousands of daily flights depends on the effective coordination between human expertise and advanced technologies. Professionals such as pilots, air traffic controllers, aircraft maintenance staff, cabin crew, dispatchers, and safety inspectors work continuously with highly technical systems. In aviation,

technology is deeply embedded in core operations, including navigation, communication, automation, air traffic management, and safety control systems. As digital technologies, AI, and automation advance, the aviation environment becomes increasingly complex. Although these advancements enhance safety, efficiency, and capacity, they also create new challenges for human operators, making stress management more critical. Within the broader stress concept, technostress has emerged as a growing concern in aviation. Sources of technostress include the pressure to learn new digital systems, fear of technological failure, constant adaptation to updated procedures, and information overload.

Studies have shown that approximately 30% of pilots and technicians experience technostress [11], while moderate levels have been found among airport ground service employees [12]. Research with 331 aircraft maintenance

personnel revealed that technological overload and complexity significantly affect employee productivity [13]. Other studies confirmed that while technological advancements improve productivity, they also increase stress, especially impacting team productivity when employees face high role overload or sensitivity to equity [14]. Similarly, another study conducted with 402 participants from the aviation sector found that technostress had a significant impact on decision-making processes [15]. These findings indicate that technostress has multifaceted effects on employee performance in aviation. In a sector where technological systems evolve rapidly, technostress poses a significant risk to both safety and operational performance. With the growing integration of AI in aviation, new complexities are emerging. AI applications in areas like air traffic management, predictive maintenance, autonomous flight, and crew resource management heighten cognitive workloads and emotional stress, particularly in safety-critical tasks.

As aviation increasingly relies on evolving digital systems, technostress has become a critical issue impacting employee well-being and organizational performance. The continuous introduction of new technologies places significant cognitive and emotional demands on professionals. If not managed properly, these pressures can reduce job satisfaction, lower productivity, and increase safety risks. Addressing technostress requires a comprehensive approach, including continuous training, user-friendly system design, strong support structures, clear communication strategies, and the promotion of psychological safety. Involving employees in technology development processes can also foster acceptance and reduce resistance. Managing technostress is essential for maintaining employee health, operational efficiency, and high safety standards. As digital transformation continues, prioritizing human-centered strategies will be key to sustainable success.

Eray BECEREN
Trainer -Anahtar Training

PSYCHOLOGICAL SAFETY AMONG AIRCRAFT MAINTENANCE TECHNICIANS:

A CATALYST FOR SAFETY AND PERFORMANCE

In aviation maintenance, psychological safety is a non-negotiable factor in preventing human error and ensuring airworthiness. It fosters open communication, rapid learning, and team accountability under high-stress conditions. Far from being a "soft" concept, it is a practical necessity that enables technicians to report near-misses, seek clarity, and challenge outdated practices without fear ultimately strengthening safety culture and organizational resilience.

In aviation maintenance, where precision and collaboration determine systemic reliability, psychological safety, which is defined by Amy Edmondson (2019) as a teams shared belief in interpersonal risk-taking without negative consequences", is a non-negotiable component of safety culture. For technicians working under time pressure on safety-critical systems, it enables transparent reporting of errors, ambiguous protocols, or equipment anomalies without fear of blame.

Operational Necessity, Not Luxury
Aircraft maintenance demands flawless teamwork, knowledge sharing, and rapid adaptation. Psychological safety is not a soft" ideal but a practical requirement. It allows technicians to question procedures, admit knowledge gaps, or report near-miss actions critical to preventing latent errors. Without this safety, teams risk silence, suppressed concerns, and unreported deviations that compound into catastrophic failures.

Critical Outcomes of Psychological Safety

Proactive Risk Mitigation: Blame-free reporting cultures significantly increase disclosures of near-misses or procedural lapses. This encourages technicians to report potential issues without fear of reprisal. This early

reporting is crucial, enabling swift corrective actions. For example, a technician noting a torque wrench calibration irregularity can immediately trigger fleet-wide inspections, thereby averting potential disasters before they occur.

Accelerated Competency Development: Junior technicians operating within psychologically safe teams are more inclined to ask questions, actively seek feedback on their work, and even respectfully challenge outdated practices.

This fosters a continuous learning environment. This is particularly vital in the rapidly evolving aviation maintenance industry, where effective mentorship and the swift adoption of new technologies (e.g., AI diagnostics) are key determinants of competency.

Collective Accountability: Complex and intricate tasks such as engine overhauls necessitate seamless coordination and clear communication among team members. Psychological safety ensures that technicians feel empowered to vocalize any uncertainties they may have (e.g., "Was the hydraulic line fully secured?"). This open dialogue acts as a crucial safety net. By encouraging these vital questions, psychological safety plays a key role in preventing oversights that could ultimately compromise the airworthiness of the aircraft.

Resilience Against Human Factors: High-stress operational environments within aircraft maintenance can significantly exacerbate common human factors such as fatigue and decision fatigue. Teams that cultivate a strong sense of psychological safety demonstrate notably lower burnout rates among their members and report higher levels of job satisfaction. This improved well-being directly translates to a reduced likelihood of human error in critical maintenance tasks.

Leadership's Role in Sustaining Safety

Supervisors and senior engineers must actively model vulnerability, this includes publicly discussing their own

errors to normalize learning from mistakes. Furthermore, they should consistently reward transparency when errors or near-misses are reported and respond to mistakes with genuine curiosity (e.g., proactively asking, "What systemic gaps might have caused this to occur?"). This approach fosters an environment where learning and improvement are prioritized over blame.

Punitive reactions to minor lapses, such as a missed inspection step, can severely erode trust within the team, making individuals hesitant to report future issues. Conversely, a coaching approach in response to errors effectively reinforces learning and helps prevent recurrence. Organizations must ensure their policies are fully aligned with "just culture" principles, which are crucial for effectively distinguishing between reckless behavior, which requires disciplinary action, and unintentional errors, which should be addressed through learning and system improvements. Finally, training programs should be carefully designed to frame errors not as individual failures but as valuable opportunities for organizational improvement and the strengthening of safety protocols.

Conclusion: In aviation maintenance, psychological safety is not optional it is the bedrock of operational integrity. It transforms human fallibility into a proactive safety net, ensuring technicians prioritize airworthiness over silence. For an industry where 80% of incidents trace to human factors, cultivating such environments is a strategic imperative, safeguarding both lives and organizational credibility.

N. Temuçin GÜREL
Instructor/Author

HUMAN FACTORS

THE IMPACT OF CULTURAL DIFFERENCES

Managing this diversity within maintenance organizations has become an essential aspect that requires evaluation and effective management. Cultural differences in the workplace are not only related to international staff but also to variations within the same nation. This article primarily focuses on the impact of cultural differences among technicians from different countries working together.

DIMENSIONS OF CULTURE...

In the late 1960s, Geert Hofstede was a young sociologist working at IBM Europe's headquarters in Human Resources. He investigated how cultural differences influenced IBM's commercial activities. Later, Hofstede expanded his research globally, surveying approximately 116,000 employees in 40 countries, resulting in his seminal work "Dimensions of Culture." Hofstede identified six dimensions essential to understanding cultural differences; four of these dimensions relevant to our topic will be briefly examined here.

Power Distance

Power distance is defined as the degree to which individuals within a society accept an unequal distribution of power. In cultures with high power distance, individuals may exhibit submissive behaviors towards those perceived as more powerful based on rank, title, or similar criteria. Conversely, individuals with higher rank in such cultures might display authoritative attitudes. In technical team environments, a senior technician from a high-power distance culture may overly assert authority, making it challenging for junior technicians to freely communicate suggestions or concerns.

For example, if a junior technician notices a senior colleague not following an up-to-date manual during troubleshooting, their

manner of communication might vary significantly based on power distance:

1. **Direct:** "This isn't the current document; you're performing the wrong procedure. Let me show you the correct one."
2. **Indirect:** "I'm sure you're correct, but could you please verify the manual for me?"
3. **Collaborative:** "It doesn't seem we're following the correct procedure. Let me check the manual again and get back to you."

These variations illustrate how increasing power distance complicates clear, assertive communication. An ideal or synergistic power distance (as represented by Figure 3) allows junior staff to express themselves comfortably while senior staff apply democratic management effectively.

Uncertainty Avoidance

Uncertainty avoidance relates to how uncomfortable individuals feel in ambiguous, complex, or rapidly changing situations. Cultures high in uncertainty avoidance strongly rely on rules and procedures, whereas cultures with lower uncertainty avoidance feel comfortable managing uncertainties without rigid adherence to predefined rules.

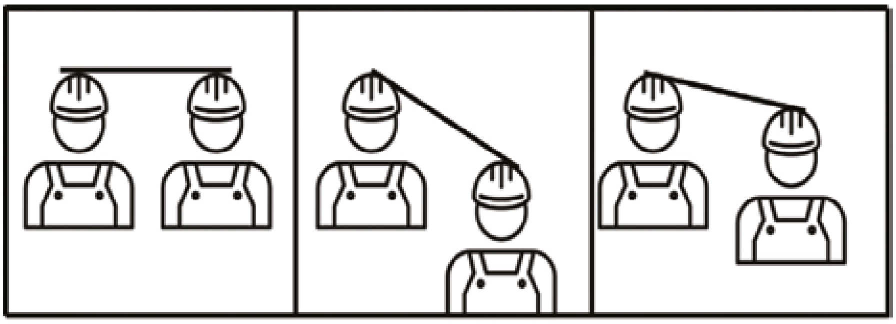


Figure 1 Figure 2 Figure 3

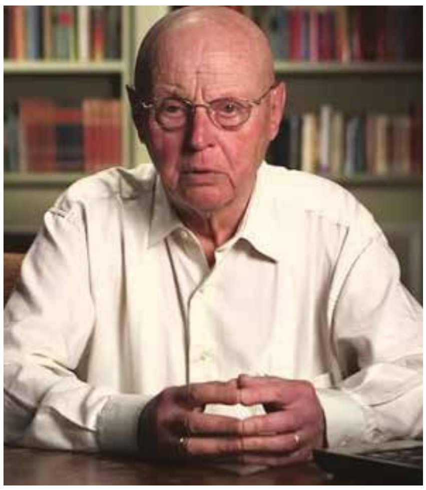
In technical maintenance, strict compliance with rules and procedures is crucial for safety. However, unforeseen and ambiguous situations still occur and require management. Hence, technicians must possess not only technical knowledge but also resilience the capacity to adapt, find solutions, remain focused, and persevere through unexpected challenges.

Individualism/Collectivism

This dimension addresses whether people act independently or collaboratively within their culture. Highly individualistic cultures emphasize personal decisions, while collectivist cultures prioritize group consensus and collaboration. In technical operations, achieving a balanced environment that supports individual perspectives within team collaboration is most effective. Differences in experience and perspective among team members can provide critical insights, but effective planning, clear role definitions, and balanced workload distributions are essential for optimal performance and safety.

Masculinity

Masculinity reflects how traditional gender roles shape social behaviors and values. Masculine cultures



emphasize competitiveness, assertiveness, ambition, and risk-taking, aiming primarily for achievement and recognition. In contrast, less masculine cultures prioritize harmonious relationships, quality work, careful planning, and risk avoidance. In sensitive technical environments such as aviation maintenance, collaborative communication, thoughtful planning, and cautious approaches are more valuable than aggressive competition or risk-taking.

As initially mentioned, the increasing global demand for technical personnel has led to culturally diverse teams in maintenance organizations, making cultural differences a significant factor in human factors management. Evaluating cultural dimensions and recognizing their impact on safety-critical maintenance processes is essential.

Various airlines and maintenance organizations address these cultural differences through well-structured training programs aimed at increasing awareness among personnel about diverse cultural characteristics. Additionally, integrating suitable

Cultural dimensions like Individualism vs. Collectivism and Masculinity significantly impact teamwork and safety in technical operations, especially in aviation maintenance. Individualism values personal decision-making, while collectivism emphasizes group harmony balancing both enhances performance. Managing this diversity within maintenance organizations has become an essential aspect that requires evaluation and effective management.

aspects from diverse cultures into standardized procedures is another important practice. Facilitating social activities to encourage interaction, understanding, and collaboration among culturally diverse staff also proves beneficial. Managing cultural differences will continue to gain importance, requiring further innovative strategies to maintain high safety standards in our increasingly globalized world.

I wish you safe and enjoyable working conditions.

Respectfully,

UTED 1968 MEDIA

You can follow us on our social media accounts!

Facebook	X	Instagram	Youtube	Linkedin

Olcay BAKŞİ
Part 147 Type Training Instructor

AIRBUS'S HYDROGEN-POWERED JOURNEY TO THE FUTURE: A NEW ERA IN THE SKIES

The sky has been home to humanity's enduring dreams for centuries. Emulating the freedom of birds, humans combined their desire to soar with technology, thus creating aviation. However, this magnificent adventure has begun to pose a threat to our planet's future.

Carbon emissions caused by fossil fuels have placed the aviation industry at a critical juncture in the fight against climate change. It is precisely at this point that Airbus's vision of hydrogen-powered aircraft rises like a hopeful whisper in the sky. This whisper is not just a technology but also a symbol of the legacy we will leave to future generations.

Airbus's Hydrogen Vision:
At the Airbus Summit held in Toulouse on March 25, 2025, the company updated its roadmap that will shape the future of commercial aviation. It was announced that preparations had begun for a new generation single-aisle aircraft that could enter service in the second half of the 2030s, and the ZEROe project was revised to mature technologies related to hydrogen-powered flight.

Airbus reiterated its commitment to launching a commercially viable hydrogen aircraft and presented some of the key technology building blocks that will enable the emergence of a fully electric, fuel cell-powered commercial aircraft, which has emerged as the most promising path after years of research in hydrogen aviation.

Bruno Fichefeux, Head of Airbus Future Programs, said, "Hydrogen is at the heart of our commitment to decarbonize aviation. While we have adjusted our roadmap, our commitment to hydrogen-powered flight remains unwavering. Fully electric aircraft powered by hydrogen fuel cells, as we have seen in the automotive sector, have the potential to improve air transport in the long term and complement the sustainable aviation fuel pathway."

These technologies were showcased as part of a new hydrogen aircraft concept powered by four 2-megawatt electric propulsion motors. Each of these motors is powered by a fuel cell system that converts hydrogen and oxygen into electrical energy. The four fuel cell systems will be fed by two liquid hydrogen tanks. This concept will continue to be developed in the coming years with additional tests to help mature technologies related to hydrogen storage and distribution, as well as propulsion systems.

Glenn Llewellyn, Head of the Airbus ZEROe Project, added, "Over the past five years, we have explored multiple hydrogen propulsion concepts before selecting this fully electric concept. We are confident that this can provide the power density required for a hydrogen-powered commercial aircraft and can evolve as we mature the technology. In the coming years, we will focus on developing storage, distribution, and propulsion systems while advocating for the necessary regulatory framework to enable these aircraft to take flight."

In 2023, Airbus successfully demonstrated a 1.2 MW hydrogen propulsion system, and in 2024, end-to-end tests of an integrated fuel cell stack, electric motors, gearboxes, inverters, and heat exchangers were completed. To address the challenges of carrying and distributing liquid hydrogen in flight, Airbus, in collaboration with Air Liquide Advanced Technologies, developed the Liquid Hydrogen BreadBoard (LH2BB) in Grenoble, France. Integrated ground testing, combining the propulsion test bench and hydrogen distribution system, is planned at the Electric Aircraft System Test House in Munich in 2027 for comprehensive system validation.

Beyond aircraft technologies, Airbus will continue to support the emergence of a hydrogen aviation economy and the related regulatory framework, which are critical for the large-scale introduction of hydrogen-powered flight.

Previous Studies and the Potential of Hydrogen:
The potential of hydrogen-powered aircraft has long been a subject of research. According to a study published by Clean Sky 2 and Fuel Cells & Hydrogen 2 Joint Undertakings, hydrogen-powered aircraft emit zero CO_2 emissions and show a 30-50% reduction in effects caused by contrails and cirrus formation compared to kerosene aircraft. The study estimates that hydrogen combustion can reduce the climate impact of flight by 50-75%, and fuel cell technology by 75-90%.

An economic study commissioned by Transport & Environment and conducted by the Steer research group shows that hydrogen aircraft could operate cheaper than fossil fuel aircraft from 2035 onwards. However, this depends on kerosene being taxed sufficiently.

Hydrogen Aviation Economy and Regulatory Framework:
The hydrogen aviation economy is still in its infancy, and there is no regulatory framework to set standards in this area. According to Cranfield Aerospace Solutions, airlines, airports, maintenance organizations, and ground service companies need to ensure they have the capacity to handle hydrogen aircraft. However, we cannot wait for hydrogen aircraft to be ready for commercial service to solve this problem.

According to Clean Air Task Force, the regulatory framework for hydrogen in the United States is fragmented, complex, and involves multiple government agencies. As hydrogen technologies evolve and the clean hydrogen market expands, new regulations for hydrogen storage, transportation, and use may be developed.

Airbus' Goals and Challenges:
Airbus aims to develop the world's first zero-emission commercial aircraft (hydrogen-powered) by 2035. The ZEROe concept aircraft will enable the exploration of various configurations and hydrogen technologies that will shape the development of future zero-emission aircraft.

Airbus notes that research into hydrogen as a potential energy carrier to power future zero-emission aircraft has intensified in recent years. However, the path to hydrogen-powered aircraft requires significant effort within and outside the aviation industry. Airbus estimates that hydrogen has the potential to reduce aviation's CO_2 emissions by up to 50%.

From hydrogen storage, cost, and infrastructure to public perception of safety, the aviation industry faces some major challenges as it works to mature the technology. Hydrogen is considered one of the most promising zero-emission technologies for future aircraft.

Although hydrogen's energy density per unit mass is three times higher than conventional jet fuel, several challenges need to be addressed before widespread adoption can occur. Technically, aviation engineers will need to take technologies developed in the automotive and space industries and make them compatible with commercial aircraft operations, particularly by reducing weight and cost.

A particular challenge is how to store hydrogen on the aircraft. While liquid hydrogen storage is among the most promising options today, storing hydrogen as compressed gas poses challenges with current aircraft weight and volume requirements. Additionally, the aviation industry will need to achieve safety targets equal to or better than those achieved with current commercial aircraft. Future hydrogen propulsion systems will

need to achieve equivalent or better levels of safety before hydrogen-powered aircraft take to the skies.

Hydrogen Infrastructure and Cost Challenges:

Another significant challenge for widespread adoption is the availability and cost of liquid hydrogen at airports. For hydrogen to be truly widely adopted in the aviation industry, it needs to be made available at airports worldwide. Progress in this area is still in its infancy. One of the main challenges is developing the large-scale transportation and infrastructure solutions needed to supply airports with the amount of hydrogen required to fuel aircraft. Hydrogen is abundant in oceans, lakes, and the atmosphere, but it needs to be separated from oxygen in water before it can be used for industrial purposes. Airbus is currently collaborating with both airports and airlines to ensure the necessary hydrogen infrastructure is in place. This includes research into how all airport-related ground transportation (i.e., cargo trucks, passenger buses, aircraft tugs, etc.) can be decarbonized over the 2020s timeline.

Airbus aims to use green hydrogen to fuel its future zero-emission aircraft. Glenn Llewellyn (Vice President Zero-Emission Aircraft) believes that the decline in renewable energy costs and the scaling up of hydrogen production could make green hydrogen increasingly competitive with current options such as jet fuel and sustainable aviation fuels.

Game-Changing Concepts for the Future of Aircraft:

There are two broad types of hydrogen propulsion: hydrogen combustion and hydrogen fuel cells. Airbus' three zero-emission "concept" aircraft, known as ZEROe, are hybrid hydrogen aircraft. This means they are powered by modified gas turbine engines that burn liquid hydrogen as fuel. They also use hydrogen fuel cells to generate electrical power to complement the gas turbine, resulting in a highly efficient hybrid-electric propulsion system. However, each option has a slightly different approach to integrating the liquid hydrogen storage and distribution system. Airbus engineers have designed integration solutions that carefully consider the challenges and possibilities of each aircraft type.

- Turbofan aircraft (120-200 passengers): Will have two hybrid hydrogen turbofan engines providing thrust, capable of intercontinental operation with a range of 2,000+ nautical miles. The liquid hydrogen storage and distribution system will be located behind the rear pressure bulkhead.
- Turboprop aircraft (up to 100 passengers): Will have two hybrid hydrogen turboprop engines driving eight-bladed propellers providing thrust, capable of short-haul journeys with a range of 1,000 nautical miles. The liquid hydrogen storage and distribution system will be located behind the rear pressure bulkhead.
- Blended-Wing Body aircraft (up to 200 passengers): Liquid storage tanks will be stored under the wings, and two hybrid hydrogen turbofan engines will provide thrust.

These concepts will help explore and mature the design and layout of the world's first climate-neutral, zero-emission commercial aircraft, which Airbus aims to bring into service by 2035. As hydrogen becomes an increasingly important component in the development of new transportation solutions such as cars and buses, public perception of hydrogen will likely change, which should positively impact the adoption of hydrogen in aircraft. The path to widespread adoption of hydrogen in aviation is still long. However, international coordination between industries is expected to support the development of the hydrogen economy, a significant effort to help achieve ambitious global decarbonization targets over the next two decades.

Electric-Powered Aircraft:
Work on electric-powered aircraft is considered an important step towards a sustainable future in the aviation sector. Research in this area focuses particularly on advances in battery technologies and increasing the efficiency of electric propulsion systems. While small-scale electric aircraft are emerging as a promising alternative for short-haul flights, work is also underway on the use of electric propulsion systems in larger commercial aircraft. These efforts can play a critical role in achieving the aviation sector's carbon footprint reduction targets.

Airbus' vision of hydrogen-powered aircraft could be a turning point in the aviation industry. This technology will not only reduce carbon emissions but also open the door to a more sustainable future. For hydrogen to be widely used in aviation, technological advances, as well as the development of a regulatory framework and hydrogen production and distribution infrastructure, are needed.

The future of the skies will rise on the wings of hydrogen.

PhD. Caner ŞENTÜRK
TAI Turkish Aerospace Industries
ITU Ari Teknokent
Structural Design Engineering Manager

THE CODES WE ENCOUNTER IN AVIATION

Most of the time, we encounter many different codes in our air travels without realizing it. For example, TK1637, TC-JDJ, LAX airport, etc. ICAO (International Civil Aviation Organization) and IATA (International Air Transport Association) have made some arrangements regarding the codes used in aviation.

They have tried to create a standard approach by making some arrangements regarding the names of airports, countries, airline companies and aircraft models etc... However, there are some differences in the systematics created by these two organizations.

The difference between IATA and ICAO

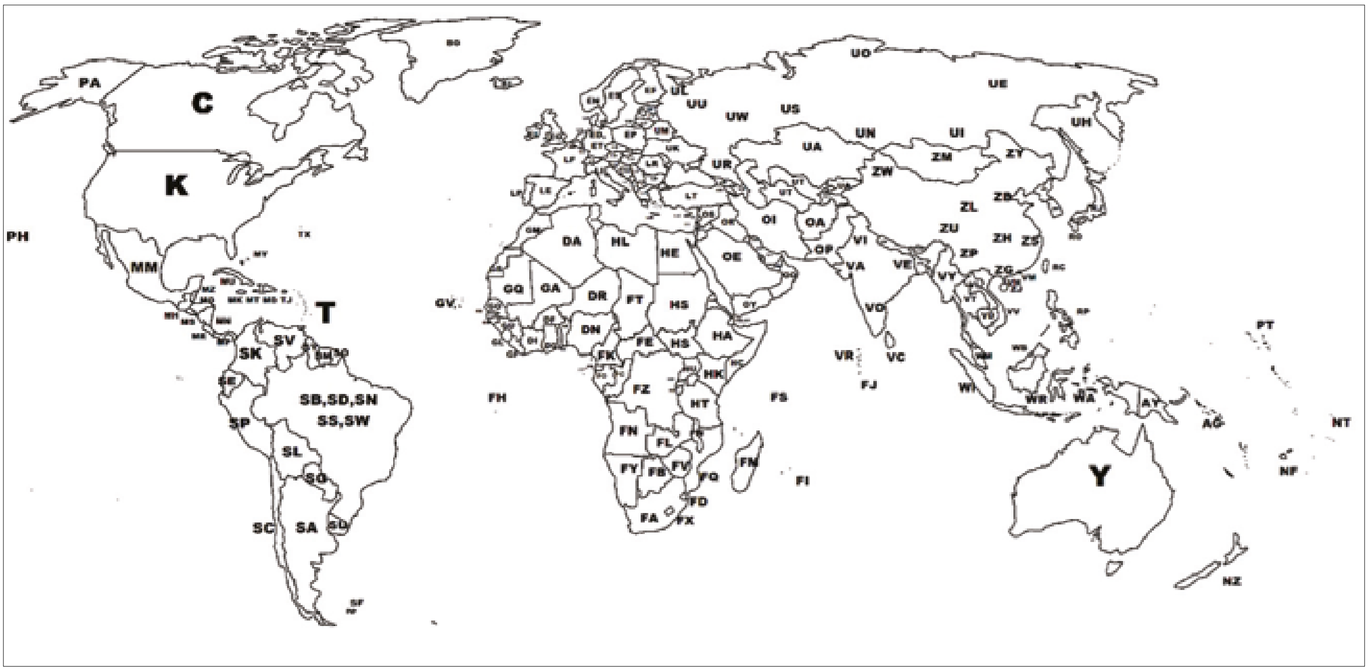
Both IATA and ICAO are international organizations that oversee civil aviation operations. However, the IATA generally supports the airline industry, while the ICAO provides global standards for air transport operations.

IATA and ICAO use some codes for airports, airlines and countries.

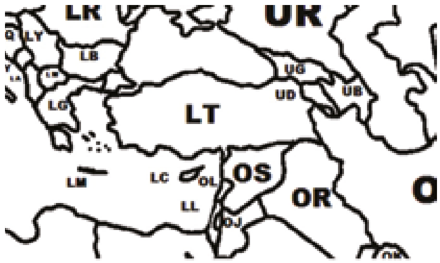
ICAO codes versus IATA codes for Airports.

In general IATA codes are usually derived from the name of the airport or the city it serves, while ICAO codes are distributed by region and country.

The International Civil Aviation Organization (ICAO) Code is a system of four-letter airport codes used primarily for operational and technical purposes in the aviation industry and as stated above ICAO codes are distributed by region and country. So, each region and the country in this region has a specific code. For example, Türkiye is in Europe which has a code "L" and has its own code such as "T", and finally "LT".



IATA (International Air Transport Association) code is a system of four-letter airport codes.



The ICAO airport code or location indicator is a four-letter code designating aerodromes around the world. These codes, as defined by the International Civil Aviation Organization and published in ICAO Document 7910: Location Indicators, are used by air traffic control and airline operations such as flight planning.

ICAO codes are also used to identify other aviation facilities such as weather stations, international flight service stations or area control centers, whether or not they are located at airports. Flight information regions are also identified by a unique ICAO-code.

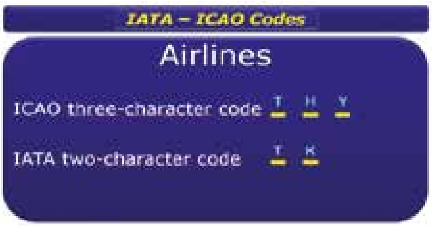
ICAO codes are separate and different from IATA codes, which are generally used for airline timetables, reservations, and baggage tags. For example, the IATA code for London's Heathrow Airport is LHR and its ICAO code is EGLL. ICAO codes are commonly seen by passengers and the general public on flight-tracking services such as FlightAware.

In general IATA codes are usually derived from the name of the airport or the city it serves, while ICAO codes

are distributed by region and country. Far more aerodromes (in the broad sense) have ICAO codes than IATA codes, which are sometimes assigned to railway stations as well. Selection of ICAO codes is partly delegated to authorities in each country, while IATA codes which have no geographic structure must be decided centrally by IATA.

While IATA codes specifically support the airline travel industry, ICAO codes more broadly support international flight operations regardless of the type of operation (to include general and business aviation)

Airline codes
IATA assigns a unique two-character code (Airline Designator Code) to all airlines – even the ones that aren't IATA members. It consists of 2 letters or a letter and a digit. For example, AA stands for American Airlines, KL for KLM, 7S for Ryan Air, TK for Turkish Airlines etc. ICAO assigns a unique three-character code such as THY for Turkish Airlines. Flight numbers are usually given by IATA codes. TK1637, AA49, LH408, AF158 etc...



IATA	ICAO	Airline	Call sign	Country/Region
TK	THY	Turkish Airlines	TURKISH	Turkey
PC	PGT	Pegasus Airlines	SUNTURK	Turkey
DL	DLH	Deutsche Luft Hansa	DEUTSCHE LUFT HANSA	Germany
AF	AFR	Air France	AIRFRANS	France

Country codes
Country codes are same in both ICAO and IATA. Each country has a specific code for example Türkiye has the code "TC" in both IATA and ICAO. USA has the code "N", France "F" etc...

Batuhan ÖZCAN
Aircraft Maintenance Engineer

THE HIDDEN THREAT IN AIRCRAFT MAINTENANCE:

HOW ORGANIZATIONAL CYNICISM AFFECTS TECHNICIAN PERFORMANCE AND WORK COMMITMENT

A neglected risk in aircraft maintenance: Organizational cynicism threatens not only employee morale but also operational safety and airworthiness. A study conducted in Turkish maintenance organizations reveals that rising cynicism among technicians is directly linked to decreased performance, reduced job commitment, and safety vulnerabilities. Effective communication, fair management, and strong leadership are key to countering this silent threat.

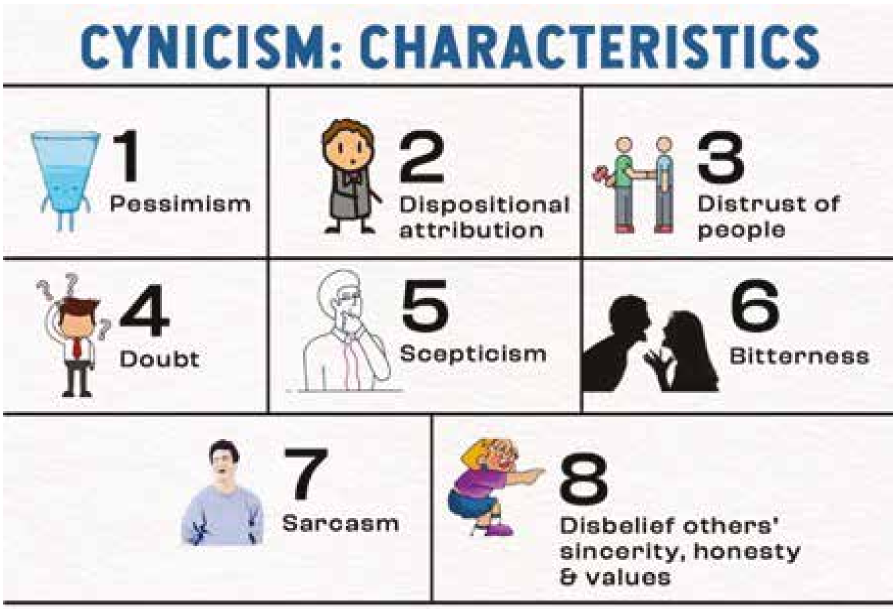
In the highly regulated and safety-driven world of aviation, human performance is as crucial as technological precision. While maintenance procedures are bound by standards, checklists, and quality audits, the emotional and cognitive well-being of maintenance technicians often goes unnoticed. Recent findings from a research study conducted across aircraft maintenance organizations in Türkiye suggest that "organizational cynicism" a growing attitudinal phenomenon may be undermining technician performance, job commitment, and ultimately, operational safety.

This article explores how organizational cynicism emerges, how it affects maintenance personnel, and what aviation organizations can do to counteract it before it becomes a systemic threat.

What Is Organizational Cynicism?
Organizational cynicism is defined as a negative attitude towards one's employing organization, encompassing beliefs that the organization lacks integrity, accompanied by feelings of distrust and contempt, and often expressed through sarcastic or critical behaviors. While this might sound like an abstract concept, in maintenance hangars, it manifests as disengagement, poor communication, resistance to change, and even an increase in procedural errors.

A recent postgraduate study conducted among 183 maintenance professionals in Turkish MRO

organizations found a statistically significant correlation between organizational cynicism and both lower performance and reduced job commitment (workaholism). The research confirmed that cynicism is not merely an individual issue, but a symptom of deeper organizational shortcomings.



Dimensions of Cynicism in Aviation Maintenance Settings
The study identified three core dimensions of organizational cynicism, each contributing uniquely to the behavioral outcomes observed in maintenance environments:

Cognitive Cynicism: The belief that the organization is dishonest, unfair, or fundamentally lacking integrity.

Emotional Cynicism: Negative emotions toward the organization, such as anger, frustration, or contempt.

Behavioral Cynicism: Observable actions like mockery, complaints, sarcastic comments, and a general disengagement from organizational goals.

Each of these dimensions was found to negatively impact both the motivation and the task performance of aircraft maintenance technicians.

In a high-stakes environment where small oversights can lead to major safety concerns, such attitudes pose a significant operational risk.

Root Causes: Why Do Technicians Become Cynical?
Organizational cynicism doesn't develop overnight. It is typically the result of prolonged experiences of disappointment, broken psychological contracts, and perceived injustices. The study identified several organizational factors fueling cynicism in MRO environments:

Psychological Contract Violations: When technicians feel that implicit promises such as career growth, recognition, or fair treatment are not honored, disillusionment sets in.

Lack of Organizational Justice: Unequal treatment in promotions, wage policies, or work assignments fosters a sense of unfairness and mistrust. Poor Communication: Limited feedback, top-down decision-making, and the absence of transparency create an environment ripe for negative speculation.

Long Working Hours and Stress: Fatigue, stress, and insufficient rest periods contribute to emotional exhaustion and negativity.

Weak Leadership and Management Skills: Technicians are more likely to become cynical under managers who lack soft skills, emotional intelligence, or the ability to lead with fairness and empathy.

The Performance Impact: Cynicism Is Not Just an Attitude
Quantitative analysis from the study revealed that higher levels of organizational cynicism are strongly associated with decreased job performance. Cynical employees are less likely to:

- Follow procedures with due diligence.
- Report safety issues proactively.
- Collaborate with team members effectively.
- Remain loyal to the organization during operational challenges.

In addition, there was a strong negative correlation between organizational cynicism and work commitment. Cynical employees were more likely to exhibit absenteeism, reduced engagement, and a passive approach to professional development. In sectors like aviation maintenance, such disengagement doesn't just hurt productivity it can compromise flight safety.

Case Snapshot: Cynicism in Practice
In one of the organizations studied, a pattern was observed where newly onboarded technicians were quickly influenced by their more cynical colleagues. Sarcasm about management decisions, distrust in announced policy changes, and lack of enthusiasm toward improvement initiatives were prevalent. These behaviors led to reduced knowledge sharing, higher turnover among new hires, and in one documented instance, a delayed maintenance report due to intentional disengagement.

This illustrates how organizational cynicism, left unchecked, can become contagious, leading to a culture where indifference and negativity are normalized.

Countermeasures: How Can Aviation Organizations Respond?
Fighting cynicism requires more than just motivational speeches or HR slogans. It demands structural, cultural, and psychological interventions. Based on the study findings, the following strategies are recommended:

Transparent Communication: Ensure open channels where technicians feel heard and informed, not just instructed.

Fair Reward Systems: Implement performance-based promotions and appreciation mechanisms that are clearly defined and evenly applied.

Leadership Training: Train maintenance managers not just in operations but also in emotional intelligence, conflict resolution, and people management.

Psychological Support: Offer workplace counseling and mental wellness programs to help staff manage stress and build resilience.

Inclusive Decision-Making: Involve technical teams in discussions around policy and workflow changes to enhance buy-in and reduce resistance.

Strategic Importance: Beyond Morale, Toward Safety and Retention
Organizational cynicism should be viewed not just as a morale issue but as a safety and sustainability concern. Technicians who feel unappreciated, disrespected, or misled are more likely to leave their jobs, disengage from safety practices, or even actively undermine organizational goals. In an industry where trust, precision, and communication are non-negotiable, these are unacceptable risks.

By fostering a culture of fairness, respect, and inclusion, MRO organizations can transform cynicism into commitment, and skepticism into engagement. Leadership must recognize that maintaining aircraft is as much about maintaining people their dignity, their motivation, and their belief in the mission.

Organizational cynicism is a slow-burning issue with potentially fast-acting consequences. For aircraft maintenance organizations, where quality, reliability, and safety rest on human execution, ignoring the emotional and cognitive health of technicians is no longer an option. By identifying, measuring, and mitigating cynicism, the industry can protect not just its reputation but its very foundation of airworthiness.

Because at the end of the day, it's not only bolts and rivets that hold an aircraft together. It's also the integrity, motivation, and belief of the technician turning the wrench.


"When you are able to intervene to change something, it means you have discovered something."
CHARLES TAYLOR
24
MAY
HAPPY AIRCRAFT
MAINTENANCE
TECHNICIANS DAY!
UTED 1968 INTERNATIONAL

TIMELESS AIRCRAFT

In our lives where time is extremely valuable, can we save time through transportation? In response to this question, a new addition was made to the supersonic aircraft that made headlines back in the 1960s. Following the legendary Concorde and its Soviet rival Tupolev TU-144, all eyes are now on the XB-1, also known as the "son of Concorde"!

Before talking about the XB-1, let's go back to the 1960s and 1970s when the dream of supersonic passenger aircraft first emerged. During these years, the first supersonic transport aircraft to make an appearance was the Tupolev TU-144, developed by the Soviet Union. Designed under the leadership of Alexey Tupolev, this ambitious aircraft made its first test flight in March 1969. Reaching an impressive speed of 2.15 Mach (2.15 times the local speed of sound), the TU-144 attracted intense attention until the 1973 Paris Air Show, after which opinions changed tragically. During the show, the aircraft performed a successful 360-degree turn, followed by a steep climb, and then began flying at low altitude to demonstrate rapid acceleration. However, after this maneuver, the aircraft began disintegrating about 5,000 feet (1,524 meters) above the crowd, eventually crashing into a nearby village and causing major destruction. In this tragic incident, all six crew members and eight French civilians lost their lives. Following this tragedy, the TU-144's sole airline operator, Aeroflot, temporarily used the aircraft for cargo transport in 1975 to restore confidence. By 1977, the jet began carrying passengers, but due to its inability to provide sufficient flight comfort, it was modified by Tupolev.

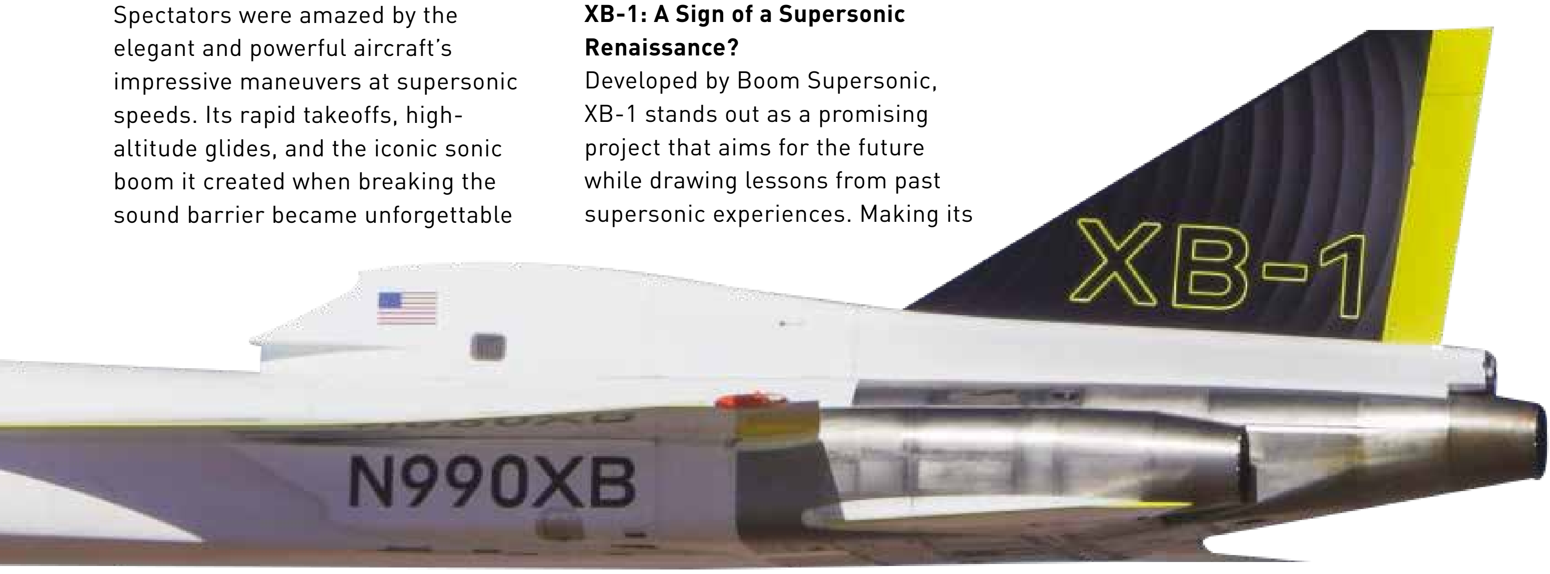
The modified TU-144 crashed during a flight in 1978 before delivery to Aeroflot, and the project was completely terminated in 1982.

Meanwhile, in Europe, the Concorde, which also made its first flight in March 1969, was making headlines in the aviation world. This elegant jet, a British-French collaboration and the world's second supersonic passenger aircraft, could reach speeds of up to 2.04 Mach. During the design and development process of Concorde, advanced technologies such as carbon fiber brakes and a partially fly-by-wire system were used. Lighter than the TU-144, with superior engine control and braking systems, Concorde stood out as a promising star in aviation, despite the misfortunes of its Soviet counterpart. Its successful demonstration flights, especially in Paris, showcased Concorde's technological superiority and reliability to the world. Spectators were amazed by the elegant and powerful aircraft's impressive maneuvers at supersonic speeds. Its rapid takeoffs, high-altitude glides, and the iconic sonic boom it created when breaking the sound barrier became unforgettable moments for aviation enthusiasts. These spectacular performances established Concorde not just as a mode of transportation but also as a symbol of engineering excellence and national prestige for both Britain and France.

Nevertheless, Concorde also faced difficulties throughout its commercial life and was finally retired in 2003. High operating costs, concerns about noise pollution, and the tragic crash in 2000 were key factors in this decision. Still, Concorde's legacy continued to inspire aerospace engineers and entrepreneurs. It is at this point that the XB-1, referred to as the "son of Concorde," steps onto the stage.

XB-1: A Sign of a Supersonic Renaissance?

Developed by Boom Supersonic, XB-1 stands out as a promising project that aims for the future while drawing lessons from past supersonic experiences. Making its first flight in March 2024, XB-1 is a prototype produced as a critical part of the development of Overture, a 64–80-passenger supersonic airliner. This demonstrator aircraft, which can fly with a single pilot, uses three General Electric J85 turbojet engines providing a total thrust of about 13,000 pounds and aims to reach speeds of Mach 2.2 (approximately 2,335 km/h depending on altitude). According to information on Boom's website, the propulsion system designed for Overture will feature a symmetrically axial supersonic intake, a variable-geometry, low-noise exhaust nozzle, and a passively cooled high-pressure turbine distinct from subsonic turbofans.

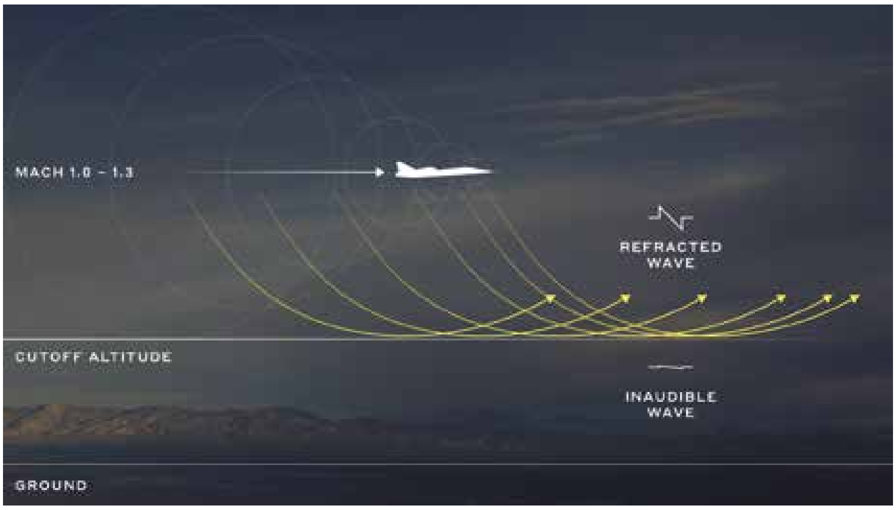


Mach Cutoff Physics and Quieter Supersonic Flight:
The XB-1's design allows it to break the sound barrier at altitudes above 30,000 feet (9,144 meters). This altitude is where the principle known as Mach cutoff physics becomes relevant. When an aircraft (or any object) exceeds the speed of sound, it generates a shockwave that moves outward and downward. However, when flying above the Mach cutoff boundary at around 30,000 feet, these shockwaves are directed upward into the atmosphere, not downward toward populated areas enabling quieter flight.

In the 1930s, aerodynamicists like Theodore von Kármán began modeling theoretical shockwave propagation and how atmospheric conditions influence sonic booms. When Chuck Yeager broke the sound barrier with the X-1 in 1947, scientists gained better opportunities to observe how sonic booms spread. By the 1960s, a solid understanding had been established about how altitude, temperature, and wind layers affected shockwave dissipation. Boom Supersonic relies heavily on these "quieter" approaches to supersonic flight in the design of both Overture and Symphony.

The Role of Technological Advancements:
If these principles were understood long ago, one might ask, "Why weren't quieter supersonic aircraft developed earlier?" The answer lies in the lack of mature technology and efficient design tools at the time. For instance, aircraft like the Concorde relied on the high thrust of turbojet engines to reach Mach 2, making it impossible to remain within the Mach cutoff envelope. Today, with automatic flight controls, advanced atmospheric modeling, and more efficient engine designs unlike Concorde's fuel-hungry engines that consumed hundreds of gallons per minute institutions like NASA, Lockheed Martin, and now Boom are effectively leveraging modern technology to realize quieter, faster, and more sustainable supersonic flights.

Commercial Interest and Production Preparations:
Commercial interest in the future of supersonic travel is also remarkably strong. Leading global airlines like



Japan Airlines, United Airlines, and American Airlines have placed 130 firm preorders for the Overture aircraft once R&D is complete. This strong interest clearly indicates the aviation industry's belief in the potential of supersonic travel. Boom has also started construction of the Overture Superfactory in Greensboro, North Carolina, aiming to produce up to 66 aircraft annually.

Latest News and Key Features of the XB-1:

- **Breaking the Sound Barrier:** According to Boom Supersonic CEO Blake Scholl, XB-1 has recently passed a major milestone by becoming the first civilian jet in the U.S. to break the sound barrier. This is seen as a critical step toward reviving commercial supersonic flight.
- **NASA Collaboration and Sonic Boom Tests**: Through collaboration with NASA, the effects of XB-1's sonic boom are being closely studied. Using schlieren photography techniques to visualize sound waves, engineers are gaining insights into sonic boom dynamics and developing potential reduction methods. Blake Scholl's statement, "We've also confirmed that XB-1 doesn't produce an audible sonic boom," is of great significance for allowing future supersonic aircraft to fly over populated areas.
- **Advanced Technology and Design:** The use of carbon fiber composite materials in XB-1 reduces weight while enhancing durability. Thanks to advanced digital design and simulation tools, aerodynamic efficiency is maximized. In addition, engines compatible with sustainable aviation fuels (SAF) represent an important step toward reducing environmental impact.
- **Path to Overture:** XB-1 serves as a critical test platform for Boom Supersonic's commercial supersonic passenger aircraft, Overture. Data and experience gathered from XB-1 will shape Overture's design. Overture is expected to carry more passengers and significantly reduce travel time on transatlantic routes.

Legacy of the Past, Vision for the Future:

Concorde and Tu-144 were pioneering projects that demonstrated the potential of supersonic passenger planes. However, the technical and economic challenges they faced led to the suspension of civilian supersonic flight for a time. Now, new-generation projects like XB-1 show that by learning from past mistakes, a more sustainable, economical, and environmentally friendly era of supersonic travel may indeed be possible. Boom Supersonic's slogan, "We're back, America!" signifies not just an achievement, but the rekindling of a dream for the future of aviation.

LIST OF MAJOR AVIATION EVENTS WORLDWIDE IN 2025

ENGINE LEASING, TRADING & FINANCE EUROPE **LONDRA** APRIL 7-10, 2025

AVIATION FESTIVAL AMERICAS 2025 **MIAMI** MAY, 14-15 2025

MRO BEER 2025 **PRAGUE** MAY, 14-15 2025

AAAA SUMMIT **NASHVILLE** MAY, 14-16 2025

AUVSI XPONENTIAL 2025 **HOUSTON** MAY, 19-22 2025

EBACE 2025 **CENEVRE** 20-22 MAY, 2025

AEROSPACE SUMMIT 2025 **LARGO** 16 MAY 2025

SPACE TECH EXPO USA **LONG BEACH** JUNE 2-4, 2025

55TH INTERNATIONAL AIR SHOW **PARIS** JUNE 16-22, 2025

ROYAL INTERNATIONAL AIR TATTOO (RIAT) **FAIRFORD** JULY 18-20, 2025

EAA AIRVENTURE **OSHKOSH** JULY 21-27, 2025

AIAA AVIATION FORUM AND EXPOSITION **LAS VEGAS** JULY 21-25, 2025

WORLD AVIATION FESTIVAL **LISBON** OCTOBER 7-9, 2025

MRO EUROPE **LONDON** OCTOBER 14-16, 2025

19TH AIR SHOW **DUBAI** NOVEMBER 17-21, 2025

AIRSPACE ASIA PACIFIC 2025 **HONG KONG**, DECEMBER 09-11, 2025

THE 15TH AVIATION FORUM **HAMBURG, GERMANY** DECEMBER 10-11, 2025

my TECHNIC
AIRCRAFT MAINTENANCE CENTER

myTECHNIC

is located on the Asian side of **Istanbul**,
at **Sabiha Gökçen International Airport (SAW)**.

Its adventageous location

between Europe and Asia makes **myTECHNIC** an ideal partner for airlines in its country as well as airlines in **Europe**, **the Middle East** and **Africa**.

www.mytechnic.aero

The Qr code can be scan for our services and capabilities.

@mytechnic.aero @myTECHNIC_MRO @mytechnic


A STAR ALLIANCE MEMBER
CONNECT TO
HOSPITALITY
with our caring cabin crew
TURKISH AIRLINES
Products and services are subject to change depending on flight duration and aircraft.