March 2026

Aero Crew News™

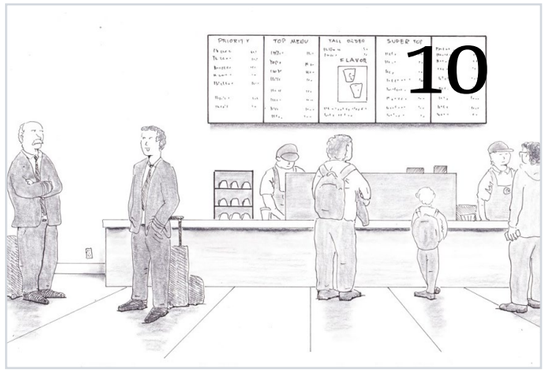
Your Industry Connection



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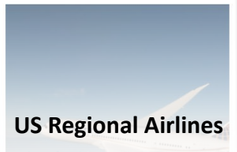
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The Grid (contract comparisons, pay charts, company details, etc.) has moved online. Click on the airlines above to go directly to that airline's information, or go to www. AeroCrewNews.com/go/thegrid.



Dear readers,

This March marks the third anniversary of Delta Air Lines pilots' groundbreaking contract—an agreement that set a new standard across the industry. Three years ago, Delta pilots took a major step forward in securing improvements in pay, quality of life, and career progression. Their success raised the bar for every pilot group in North America, proving what unity and clear vision can achieve.

Now, with that contract's "early opener" provisions taking effect soon, Delta pilots have another opportunity to lead once again—demonstrating that continuous progress doesn't stop with one great deal. This should inspire union leaders everywhere to match that level of commitment and respect for their flight crews.

What new contract terms would you like to see in your pilot group's next agreement with your company? We'd love to hear from you—email us at info@aerocrewnews.com.

Fly Safe,

Craig D. Pieper

Craig D. Pieper



About the Publisher

Craig Pieper is the Publisher and Founder of Aero Crew News. Craig obtained his Bachelors of Science in Aeronautical Science, along with a minor in Aviation Weather, from Embry-Riddle Aeronautical University in 2001. Craig is also a captain for a major airline with a type rating in the Boeing 737 & Embraer 145 and has logged over 10,000 hours of flying time since his introductory flight on November 14th, 1992.

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Coffee & Pretzels – Was that rejection serendipity?

Fitness – Exercising after a red-eye can be done right or done wrong. Do it right!

Grey Matter – In the series on passenger announcements, this one covers abnormal and emergency events.

Money – Health insurance options for early retirees are huge considerations.

Mortgage – Conforming loan limits rise for 2026. What does that mean in your domicile?

Perspectives – Weeding through pilot schools means picking through the online threads.

SkyLaw // California – What are your rights after an aviation accident in the Golden State.

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Allegiant Pilot's Teamster Decertification Push Hits a New Milestone

Pilots at Allegiant Air have secured more than 400 signed authorization cards in support of decertifying the Teamsters as their collective bargaining representative. Following the proposed merger between Allegiant Air and Sun Country Airlines... Read More



Letter: ALERT Act Falls Short of Fully Implementing NTSB Recommendations in Midair Collision

The National Transportation Safety Board released a letter to lawmakers emphasizing the Board's recommendations in the wake of last year's deadly midair collision near Ronald Reagan Washington National Airport. Read More



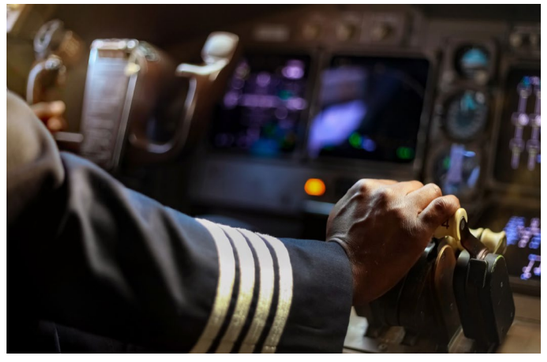
AFA Statement on House Failure to Pass the ROTOR Act

The Association of Flight Attendants-CWA President Sara Nelson, representing over 55,000 Flight Attendants at 20 airlines, released the following statement on the House's failure to pass the ROTOR Act... Read More



Spirit Airlines Reaches Agreement in Principle on Key Terms of Restructuring Support Agreement with Its Secured Creditors

Spirit Airlines, LLC announced that Spirit has completed another significant milestone in its restructuring by reaching an agreement in principle on the key terms of a restructuring support agreement with its existing DIP lenders and secured noteholders. Read More



ROTOR Act Fails in House, ALPA Says 67 Lives Demand Congress Finish the Job

Capt. Jason Ambrosi, president of the Air Line Pilots Association, Int'l (ALPA), issued the following statement today after the U.S. House of Representatives failed to pass the Rotorcraft Operations Transparency and Oversight Reform (ROTOR) Act. Read More



PSA Flight Attendants Reach Tentative Agreement

PSA Flight Attendants, represented by the Association of Flight Attendants-CWA (AFA), reached a tentative agreement with PSA Airlines, a wholly-owned subsidiary of American Airlines. The three year agreement includes an immediate 10% wage increase, pay for boarding that adds an additional 15-16% compensation on average...Read More

AVIATOR BULLETINS



Delta's largest Hawaii schedule: MSP–Maui launches, BOS–Honolulu returns

Next winter, getting to Hawaii will be a breeze with more options than ever for Delta customers. Delta is growing its island network with the launch of Minneapolis–St. Paul to Maui and the return of Boston to Honolulu beginning Dec. 19, 2026...Read More



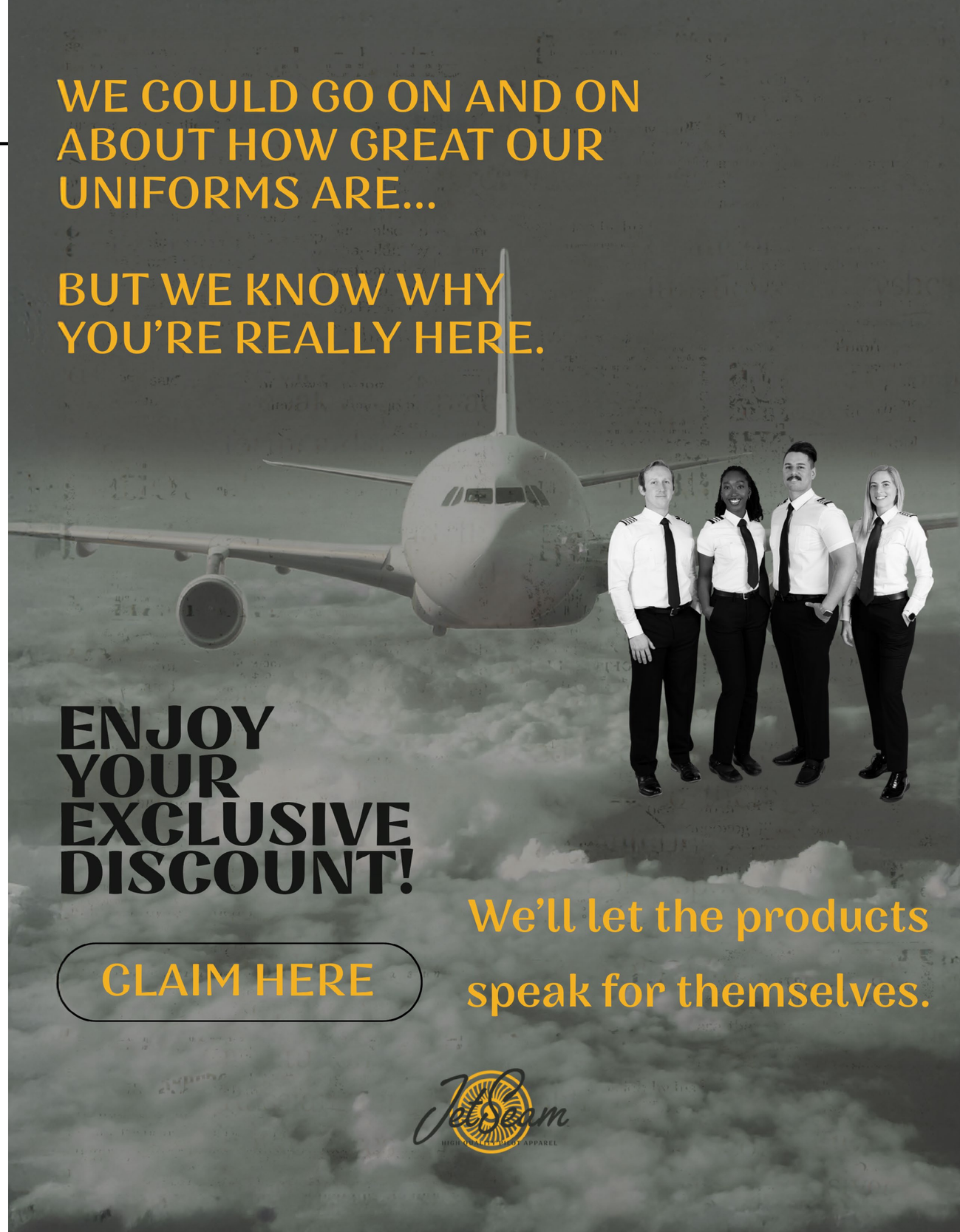
Air transportation safety investigation A25O0021 preliminary report

This preliminary report, which provides information on the progress of the safety investigation, contains facts ascertained up to 20 March 2025, the date it was released. The information in the report may be incomplete or change in the course of the investigation, and new information may be obtained...Read More



'Blue Sky' Reaches New Altitude: JetBlue and United Begin Offering Sales Across Both Airlines

JetBlue and United Airlines announced the roll out of the next major customer benefit from their Blue Sky collaboration: beginning this week, travelers can start to purchase eligible itineraries operated by either airline... Read More

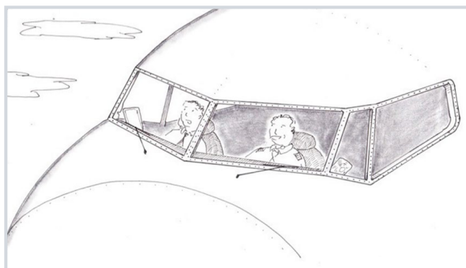


coffee & pretzels

Greg Kaley



That sounds like an amazing job if you were young and single or old and divorced



Check Out Last Month's Cartoon



About the Author

Greg Kaley is a pilot with a major airline who also happens to be a cartoonist. He started the cartoon "Coffee & Pretzels" in 2016. After graduating from Embry-Riddle Aeronautical University (Prescott Campus), he flight-instructed and subsequently... Read More...



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The Power of Real-World Mini-Meetups

Written by: John McDermott

Through the years I have been flying, I have had the opportunity to meet a wide variety of colleagues. Many are pilots—flight instructors who guided me through my initial training or who were at airport jobs with me while pursuing higher ratings. I've also met a great number of air traffic controllers, aviation safety inspectors, line service agents, and aviation writers and bloggers who share daily news of our industry.

The more my network has grown, the more opportunities I have had to meet other acquaintances and colleagues in the real world. Oftentimes, we organize meetings and events together to deepen connections and encourage camaraderie. However, sometimes my encounters are brief; I often run into colleagues in airport terminals, at FBOs, or annual industry conferences where many meet with recruiters and chief pilots.

I always appreciate each opportunity to meet with people I have come to care for. Catching up, even on the go, is a wonderful opportunity that I do not take lightly. For example, I recently ran into one of my former instructors (whom I originally met in Chicago) at a Pennsylvania airport, where I was teaching my own students and he was operating an airliner. The impromptu meetup, which neither of us had planned, was a pleasant surprise that allowed me to reconnect with an old acquaintance.

Chance meetups have also afforded me beneficial opportunities. The first air traffic controller whom I had met in person invited me up into his facility, where I have since met each controller he works with. This gave me an opening to take students to get an idea of the faces on the other side of the mic. Just one initial meeting opened opportunities not only for me but for my students.

Meeting with our mentors allows us to bounce ideas off each other, providing the chance to learn something new in a more intimate setting than simply sending blue bubbles back and forth. Chatting in-person allows for more fluid conversation to discuss details, intricate situations, and upcoming situations.

I equally enjoy running into fellow AvGeeks, those who simply enjoy aviation. Some collect models or take amateur pictures; some write articles or work as gate agents for a chance to get close to the action. These interactions remind me that aviation isn't always work; sometimes, it's about sharing the love of flight and the wonder we experience each time the wheels leave the ground. For all the stressors and challenges of my work, sometimes it is helpful to remember why I love aviation so much—and there is no better place to find that than with someone who will do whatever they can just to be around an airplane.

Aviation is a relatively small community. Put together, Commercial and airline transport pilots make up a tiny proportion of the general U.S. population. Being in such a small world affords us the ability to form deep connections. I have enjoyed dinner and many flights with current and former coworkers, and in a few cases have issued reciprocal wedding invitations. Shared experiences bind our industry tightly. There is a reason that major air accidents impact many pilots, controllers, mechanics, and ground staff so deeply.

Small check-ins and impromptu meetups are often what keeps connections strong. In an industry where everyone is on the go and schedules are tight, we miss important events, long days lead to intense fatigue too often at unfortunate moments. Enjoying a small dose of excitement spent with someone close can make the difference that gets pilots through the day. I'm writing this on a flight that will deposit me on the other side of the country in the same amount of time as many sporting events, I am reminded just how big the world can be. Real-world moments of connection keep us grounded and in touch with how wonderful shared moments can be.



About the Author

John McDermott's passion for aviation began in a Michigan bookstore when he found a story about a chance encounter between enemy pilots during World War II. Soon, after watching countless hours of fighter jets and traffic from his home near O'Hare International Airport, he was hooked forever.. Read More...

GREY MATTER

Passenger Announcements, Part IV

The Good, The Bad, and The Ugly

Written by: Richard Swindell, Andrew Ross, and Jolanda Witvliet



Welcome back and to the final installment of this cheeky little discussion on passenger announcements. As a wrap-up to this series, this month is less of a discussion and more of "there I was" story telling intended to highlight some of the things heard and said over the PA.

Across the years of flying and being flown, we've heard and read about such things like, "Folks, we'll be landing at Chicago's O'Hare shortly, and while I'm not a real airline pilot, I did stay at a Holiday Inn Express last night." Cute. But seriously, some passengers might be legitimately concerned if they don't recognize Holiday Inn's 1998-2009 marketing campaign.

Then there was a destination joke that went too far when the pilot continued to reference Rome, Italy instead of the actual destination of Rome, New York—resulting in passengers becoming genuinely concerned, despite the fact that an Airbus 319 simply does not have that kind of range from any destination in the U.S. Oh, the things we know that many don't!

And yes, from time to time we do mistakenly make PAs on the in-use ATC frequency simply because we're often utilizing multiple radio units and frequencies at once. Most of the time, the controller benevolently repeats the frequency sector name ("That was on Oakland.", or "Last caller, say again for NorCal.") as a notice of where that PA just went—out, not in, as it were. But Vayu, Hermes, Horus, Icarus and Daedalus help you if you make that PA in NYC airspace, where not only will the controller likely lambast you for it, but will invite all other pilots on frequency to do the same.

Recently as a passenger, I was on a flight from Roatán, Honduras to Belize City, Belize in a single engine, 14-seat Cessna Grand Caravan (208B). Although there were two pilots, I wasn't expecting anything other than a reasonably safe, 40-minute flight across the Gulf of Honduras. On the taxi out, the captain said, "Welcome aboard this 40-minute Tropic Air flight. Thanks for joining us, keep your seatbelts fastened." Then 41-minutes later, "Welcome to Belize. Thanks for flying with us."

To my mind, that's about perfect. I get it though. I fly the B777 and we (*need* is the wrong word here) *should* probably say a few more things about the flight when it's closer to 16-hours long. Yet, do we really need to tell passengers that in 12-hours over the Sea of Japan there will likely be some turbulence? No. Nevertheless, if there were a standard, the Tropic Air captain's should be closer to it.

Here however, is what should not happen—and I know, because I'm the one who said it. "Ladies and gentlemen, welcome aboard this US Air flight up to Syracuse, New York where the weather is 58 degrees, with light winds out of the north-northwest, and good visibility under partly cloudy skies. Although we're anticipating a mostly smooth flight for our one hour and ten minutes up to Syracuse, please keep your seatbelts fastened anytime you're seated or the seatbelt sign is on, for your safety as well as the safety of those around you. Now, sit back and relax, enjoy the flight and we'll talk to you again just a little bit closer to Syracuse."

Yeah, ok, not bad as far as PAs go, I suppose, but the problem was that I had not actually bothered to check the weather for what I assumed was an average fall day in the region. It had been nice all day up and down the Atlantic seaboard, so why not on this last-leg-of-the-day flight, with a full plane and an American pilot in my jumpseat?

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In fact, there was an early season norther rushing down from Canada which was creating massively convective conditions along with heavy rainfall in Syracuse. We were in constant moderate turbulence from Maryland all the way in, went missed twice for low-level windshear, and were going to have to divert to Boston if we couldn't land on the third and final attempt. I did manage to get in and as soon as we were off the runway, the flight attendants called to report no fewer than 17 contaminated seats (meaning vomited upon), and 21 emesis bags (vomit bags) had been used as well. The American pilot just gave me a knowing, albeit disparaging look as he unbuckled his harness, quietly gathered his gear and left the flight deck. For PA announcements, this one falls into the category of "don't say what is categorically untrue." It also appears in the "know your facts" category.

Then there is well-intentioned, accurate, but altogether inappropriate information yet points in the opposite direction of the above example. Recently, I was on a flight as a passenger between Chicago O'Hare and Denver International Airport. The captain was making the welcome-aboard PA and gave a warning about potentially rough rides leaving Chicago. This wasn't the problem though. The problem was the five-minute briefing (yes, five) about what to do in the event we crashed, paying attention and abiding by the flight attendant's instructions, and making sure we have those seatbelts tight for the whole flight. The passenger seated next to me immediately called her husband and proceeded to have a full-blown panic attack and almost got off the airplane. "They must know something we don't, I've never heard an announcement like this. We must be expecting to crash."

I talked the passenger out of running off the airplane crying. She was better when her Ambien kicked in which took about 30-minutes. I fumed at the captain. Did he think scaring the hell out of 150 people (including myself because it was so VERY out of the ordinary) was the appropriate thing to do? Maybe there was an effort to placate the flight attendants, or maybe he subscribes to the idea that more information is better than no information. Whatever the case, consider that whenever you say something on the PA, if it's beyond the usual cadence and content at all, people will notice, and in the absence of clarifying information, passengers imaginations will run wild.

Further to this point, as a pilot, the "out of the usual cadence" actually works well when you really do need to get passengers' attention for something important—so remember that, but use it sparingly.

Here are a few more recommendations for PAs in general:

- Do not announce to the folks that Mr. Smith's, the gentleman currently seated in 8C, wheelchair will be standing by in the jet bridge upon arrival. This is a HIPAA violation and very inappropriate.
- If you are delayed, keep your passengers informed—even if you don't have an update. Doing so becomes the update.
- When it comes to maintenance and mechanical issues, be honest, but don't overcomplicate announcements with technical, esoteric language that some may deem scary. E.g., "Hello folks, another update from the flight deck. We have been informed that maintenance has located the necessary parts and will be starting the process of installing them shortly. We are still looking at an estimated departure time of 11:15."
- If due to a delay for any reason, you are required to offer egress (exiting the aircraft due to the legally enforceable passenger bill of rights), kindly remind passengers, "Should you choose to leave, you must take all of your belongings with you; and we advise you to stay close to the gate and monitor announcements in the gate area as well as within the app, because boarding could resume at any point and the flight will not wait for you should you decide to deplane and wander too far off. Thank you."
- Occasionally, you might have the solemn task of making a special announcement concerning transporting the remains of a fallen service member. The company typically has a readymade PA for you that sets the proper tone. Use it, and do not improvise. However, should this not be available to you, we would encourage you to seek advice from a knowledgeable colleague if you've never done this kind of PA before. In any case, keep it short, solemn, and professional. No prayers, no heartfelt endearments, no patriotic sentiments.
- From time to time, a flight attendant will pass along a request from a passenger to make a PA regarding another's wedding, birthday, anniversary, or similar, which is fine (because it builds some degree of brand loyalty), but as always, less is better, always.
- Lastly, and as previously mentioned, for Pete's sake, stay away from politics and religion.

In closing, for those who use the handheld or crew interphone to address the passengers, remember, the PTT switch means "Push to Talk", not "Push to Think." Know what you're going to say before you say it. Keep it short, to the point, and professional. And for those on the receiving end of PAs, thanks for listening. And to everyone else, thanks for reading.



About the Authors

Richard Swindell left active-duty military service and transitioned to the airline industry where he flies and works as a line check airman for a major airline. Read More...



Andrew Ross is a pilot at a major airline flying the Boeing 787, previously the Boeing 757 and 767 domestically and internationally, and prior to that flew the Embraer 145. Read More...



Jolanda Witvliet holds an ATP with type ratings in the Boeing 737, 757, 767, 777, and 787. Jolanda is part owner of VATH Publishing and is a co-author of The Airline Transition Manual. She flies for a major airline... Read More...

PRODUCT REVIEW

Keep a DEX FingerLight on Hand–Literally

Written By: Craig Pieper, Publisher

The DEX FingerLight is a compact, USBC rechargeable, wearable LED light designed to be worn on any finger, even over gloves, giving pilots truly handsfree illumination exactly where they're looking and working. I found it most comfortable on my index finger, and I was able to activate the light with my thumb. The DEX FingerLight comes with three lighting modes—including a friendly nightvision green. I found it ideal for preflight inspections, cockpit flows, and postflight tasks where traditional flashlights or headlamps can be unwieldy, uncomfortable or overly bright.

Design and ergonomics

The core of the design is the patented Griptonite/DEXFLEX adjustable ring: a copper ring overmolded of soft thermoplastic polyurethane that instantly conforms to most finger sizes, including over flight gloves. In practice, this means you can slide the light onto an index finger for a walkaround, switch to a thumb for checklist work, or swap hands without fiddling with buckles or straps. At roughly 0.5 oz. and only 1.6 x 0.9 x 0.7 inches, it feels closer to wearing a wedding band than to handling a flashlight. It doesn't fatigue your hand or snag in tight spaces like under panels or behind seat rails.

Lighting performance in the cockpit

DEX offers three modes: High, Low, and Stealth/NightVision Green. The brighter white modes are ideal for preflight inspections—fuel sumps, gear wells, cowl interiors—where you want a tight, directional beam while both hands free are for touching, tugging, or draining. Low mode better applies to incockpit tasks like finding a dropped pen, reading a placard offaxis, or illuminating a circuit breaker panel without washing the entire cockpit in light

.

The green mode is where the light firmly earns its aviation credentials: it preserves night vision while still providing enough contrast to read charts, approach plates, or analog gauges in legacy panels. For glass cockpits, being able to aim a narrow green beam at a switch or knob—without splashing bright white across displays—helps maintain a darkadapted, lowglare environment. Mode memory is a quiet but important feature: DEX powers on in the last mode used, so if you prefer green for night ops, you don't risk cycling through bright white in a dark cockpit.

Power, charging, and everyday usability

A rechargeable lithiumpolymer battery brings DEX in line with modern EFB accessories, eliminating the "which batteries does this take" question. It recharges via USBC in under two hours and includes a short USBC to USBA cable, mating neatly with typical cockpit power banks or panel USB ports. Runtime will vary by mode, but the manufacturer's figures—for example, reaching multiple hours at lower intensities—are appropriate for several cycles of night ops between charges, especially if you primarily use green or low modes.

Carrying Case and Carabiner Clip

The carrying case and carabiner clip make it convenient to attach the DEX FingerLight to your flight bag, ensuring its convenient availability. I was also able to store the charging cord in the top mesh compartment keeping everything neatly in one place.

Conclusion

I am pleased to recommend this handy aid to my flying colleagues, but I think I'm going to get another for the miscellaneous-stuff drawer in our kitchen. I can think of myriad ways this would be handy to have—literally on hand.

Ordering

To order your DEX FingerLight click here. Or go to https://aerocrewnews.com/DEX. No need to tell them we sent you, the link tracks it.

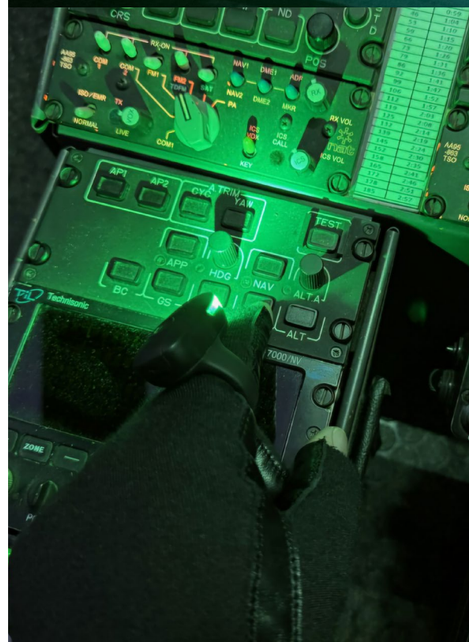


About the Publisher

Craig Pieper is the Publisher and Founder of Aero Crew News. Craig obtained his Bachelors of Science in Aeronautical Science, along with a minor in Aviation Weather, from Embry-Riddle Aeronautical University in 2001. Craig is also a captain for a major airline with a...Read More







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The Windshear Paradox: *Why Dispatch Performance Requirements Mandate a Fixed Derate*

Written by: Ajay Raghavendra, Ph.D.

Editor's Note: *This month we launch* ***Desk One****, a new column relating to the art and science of dispatch. Joining us as a contributor for future columns is Laura Laster, an expert in the dispatch space. This month, the regular contributor for our weather column,* ***Squall Lines****, has written on the topic, and Laura has written for Squall Lines. You'll recognize some crossover. Each author will return to their own columns in future issues.*

> *"Wind shear. A sudden, drastic shift in wind speed, direction, or both that may occur in the horizontal or vertical plane."* – Airplane Flying Handbook, 2021 (FAA-H-8083-3C)

"Takeoff with full rated takeoff thrust is recommended if windshear conditions are suspected, unless the use of a fixed derate is required to meet a dispatch performance requirement." – Boeing 737 NG/MAX Flight Crew Training Manual

Conventional wisdom suggests that if windshear advisories are in effect, pilots should select the longest suitable runway, review key airspeeds, use maximum takeoff thrust and avoid reduced thrust takeoff settings (e.g., Assumed Temperature Method or Fixed Derate), maintain initial climb pitch attitude and thrust setting until a safe terrain and obstruction altitude is achieved. Recommendations for windshear encountered after V1 include continuing takeoff by disconnecting auto throttle (if applicable), maintaining maximum thrust, and higher pitch attitude. For more information, please read my article on Windshear: The Science, Equipment, and Mitigation in the February 2024 issue of Aero Crew News.

Naturally, I was perplexed when the Boeing 737 FCTM advocated for the "*use of a fixed derate is required to meet a dispatch performance requirement*". Two questions came to my mind: Why should I use a reduced thrust takeoff in environmental conditions ripe for windshear? And what does Boeing mean by "*dispatch performance requirements*"? The answer to the second question was relatively straightforward i.e., "*dispatch performance requirements*" are the regulatory and safety-based calculations that determine if an aircraft can safely take off, fly, and land under specific conditions. Before any flight, the flight crew and dispatchers must prove that the airplane can meet certain benchmarks i.e., proving that the aircraft weight is acceptable for the given environmental constraints. The answer to the first question required some additional study and research work that I have summarized below.

The *dispatch performance requirements* typically entail:

1. V1 Decision Speed and Runway Length:

The most critical requirement is the Accelerate-Stop Distance. If an engine fails just before takeoff speed (V1), the aircraft must be able to stop within the remaining runway. Conversely, if it continues, it must be able to clear any obstacles at the end of the runway on a single engine. Balanced field takeoff is an important factor to consider, especially when takeoff engine thrust settings are reduced (derate and/or assumed temperature method).

Note: Higher the takeoff thrust setting, higher asymmetric thrust in the event of an engine failure. Since the V1 decision speed takes into consideration the Minimum Control Speed (Vmcg/Vmca; 14 CFR § 25.107), using a fixed derate (a permanent electronic limit on engine thrust) helps lowers the V1 decision speed. Reduced takeoff thrust settings allow for lower takeoff speeds and better performance on short or contaminated runways.

2. Takeoff Flight Path i.e., Terrain/Obstacle clearance and Engine Failure Procedure (EFP):

Even if you get off the ground, performance data should support the aircraft to safely climb away from terrain and obstacles.

Dispatch requirements dictate that the airplane must maintain a specific climb gradient (e.g., 1.2% for two-engine airplanes per 14 CFR § 25.111) to clear obstacles like mountains or towers.

3. Structural vs. Performance Limits:

A plane might be structurally capable and certified for 170,000 lbs. maximum gross takeoff weight (MGTW), but if the aircraft is departing on a short or contaminated runway, at high density altitude (temperature or airport elevation), or takeoff flight path constrained (e.g., Obstruction NOTAM), the maximum runway takeoff weight (MRTW) may be 140,000 lbs. You cannot dispatch the flight if the actual weight exceeds the performance-limited weight.

Note: Commonly used aircraft-performance software such as AeroData take into consideration aircraft weight, runway, environmental conditions (e.g., runway length, slope, breaking action, contamination, and weather), and NOTAMS to generate the optimal takeoff and landing performance solutions. AeroData solves this paradox for pilots. When a pilot sees “Fixed Derate Required” on their performance data, it is usually because the software found that the V1 required to stop on that specific runway was lower than the Vmcg at full rated thrust.

After reviewing typical dispatch performance requirements, a reasonable conclusion includes using every bit of power you have to get through potential windshear. However, if your performance calculations require a fixed derate to safely meet runway or obstacle clearance rules (often due to Vmcg issues on a short or slippery runway), then the performance calculations advocating for a reduced thrust takeoff overrides the recommended maximum thrust takeoff.

How does a Fixed Derate help with *Vmcg* and reduce the V1 Decision Speed?

When subjected to a contaminated runway (e.g., standing water, slush, or ice), you not only loose braking action but also directional control if an engine fails. A fixed derate can keep you on the pavement. Vmcg is the minimum speed at which you can lose an engine and keep the airplane on the runway centerline using only the rudder. Therefore, if you encounter an engine failure, we must promptly reject a takeoff at speeds below V1 since directional control is not guaranteed and continue takeoff above V1 since there is a high risk of a runway overrun.

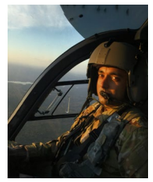
The Fixed Derate Solution

High Thrust ⟹ High Thrust Asymmetry in the event of an engine failure. Low Speed ⟹ Weak Rudder effeteness. At low speeds, there isn’t enough airflow over the rudder to fight that massive thrust asymmetry. The Result: If you lose an engine below Vmcg, the plane will veer off the side of the runway before you can even lift off. By using a fixed derate, you are “capping” the maximum thrust the engine can produce for that takeoff. Lower Thrust ⟹ Lower Thrust Asymmetry in the event of an engine failure ⟹ Rudder can maintain directional control even at lower airspeeds ⟹ Lower Vmcg ⟹ Lower Takeoff Speeds (V1, VR, and V2). Since your Vmcg is now lower, you can legally and safely choose a lower V1 speed.

Why this is a “*Dispatch Requirement*”

If you are on a short, slippery runway, you need a low V1 so you’ll have enough room to stop if things go wrong. But you can’t pick a V1 that is lower than your Vmcg. For example, If the Full Thrust Vmcg is 130 knots, but your runway only allows a V1 of 120 knots, using a Fixed Derate will reduces Vmcg down to 110 knots. In this specific scenario, the derate is “*required to meet a dispatch performance requirement*”.

Stay tuned for my next article on windshear and takeoff thrust settings: Assumed Temperature Method vs Fixed Derate.



About the Author

Ajay Raghavendra is a B-737 first officer with a U.S. airline and a rated UH-60M Black Hawk helicopter aviation officer with the U.S. Army (New York National Guard). He holds a Ph.D. in Atmospheric Science from SUNY-Albany and graduated with honors from Embry-Riddle Aeronautical University (Fla. campus) with a B.S. in... Read More...



This TAF Is Garbage!

Written By: Laura Laster

Editor's Note: *This month, the regular contributor for our weather column,* ***Squall Lines****, has written on the topic of dispatch in our new column titled,* ***Desk One****. Laura Laster, the author for this month's Squall Lines will be the regular contributor for Desk One and Dr. Ajay Raghavendra will be back for Squall Lines. You'll recognize some crossover this month. Each author will return to their own columns in future issues.*

Sometimes I hear people complaining that the TAF is "garbage," or slightly kindlier worded, "inaccurate." It can be easy to look at a TAF and second guess what it is saying when METARs don't seem to line up with what the TAF says for a given time period. On this day, I heard complaints that the TAF wasn't accurate.

TAF KGGG 031141Z 0312/0412 18010KT P6SM VCSH OVC020
TEMPO 0312/0316 5SM -SHRA OVC010
FM031600 22009KT 5SM -SHRA OVC010
FM032200 32009KT P6SM SCT020

From the same day, here are the METARs: (I have shortened them by removing the remarks.)

METAR KGGG 031653Z 22007KT 10SM BKN016 OVC020 17/13 A3015
SPECI KGGG 031629Z 21009KT 10SM BKN015 OVC060 17/13 A3014
SPECI KGGG 031618Z 21009KT 10SM BKN014 BKN027 OVC060 16/13 A3014
METAR KGGG 031553Z 21007G17KT 10SM BKN015 OVC023 16/12 A3014
METAR KGGG 031453Z 20012KT 10SM BKN017 BKN025 OVC034 14/12 A3013
METAR KGGG 031353Z 19006KT 10SM OVC017 14/11 A3012
METAR KGGG 031253Z 19007KT 10SM BKN018 OVC024 14/11 A3011
METAR KGGG 031153Z 18010KT 10SM OVC021 14/11 A3010

On this particular day, the complaints centered around the TEMPO line showing visibility dropping to 5 sm with light rain showers and overcast clouds at 1000 ft. forecasted between 12Z to 16Z. The sequence of METARs don't show the ceiling *or* the visibility dropping as low as the TAF predicted.

Still, I maintain this TAF was not "garbage." The reason is how a TEMPO is defined. From the Aviation Weather Handbook, chapter 27, it says a TEMPO:
"... is used to indicate temporary fluctuations to forecast meteorology conditions that are expected to:

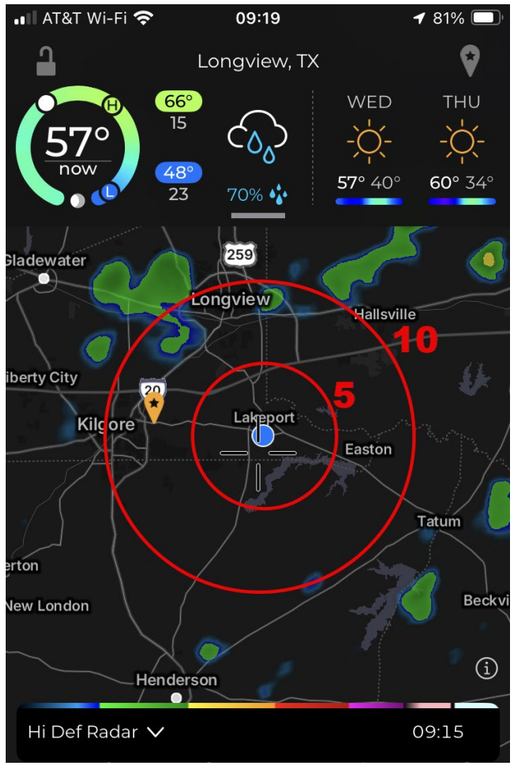
- Have a high percentage (greater than 50 percent) probability of occurrence
- Last for one hour or less in each instance; and
- In the aggregate, cover less than half of the period ..."

Breaking down the definition, we see a TEMPO *does* have a high percentage of probability of occurrence, but it's not as solid a bet as an FM (or From) group. An FM group, as defined by the Aviation Weather Handbook, does not have any probability associated with it and is used when the conditions are expected to change significantly.

Also, the TEMPO for the light rain showers associated the shower activity with lower visibility of 5 sm which makes sense given what we know about rain showers and their ability to lower visibility.

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Again, a closer look shows the first line of the TAF—always an unwritten FM period—does call for rain showers but in the vicinity of the airport, as it says VCSH. There *were* showers in the vicinity on this day. Notice this radar shot I grabbed. I added a 5 sm and 10 sm radius circle drawn around KGGG, because "VC" or "vicinity" means the particular item is forecasted to be within 5 to 10 statute miles of the TAF airport.



In this case, there *are* rain showers which seem to be of light intensity in the vicinity of KGGG. And those rain showers *may* have resulted in visibility dropping to 5 sm or at the very least below 10 sm. Reviewing the METARs again, there *is* a trend toward lowering ceilings as the hours passed, though it never dropped to 1000 ft. We also see the wind change almost exactly as predicted in the FM1600 line.

So, while parts of the TAF didn't end up perfectly playing out in real life in this example, understanding fully the TEMPO definition helps us appreciate what meteorologists *are* and *are* <u>*not*</u> trying to say when they choose to include one in the forecast.

True confession time: I will admit to once having said to a fellow pilot, "This TAF was written by monkeys!" My apologies to all monkeys and meteorologists alike.



About the Author

Laura Laster graduated from LeTourneau University in 2004, becoming a flight instructor for the university. She then worked for Dynamic Aviation as a King Air survey pilot and eventually worked at Dynamic Airways during their air carrier certification for Part 121 Supplemental operations... Read More...

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Runway Safety Lights (RWSLs)

Written by: Sergio Sovero

Runway Safety Lights (RWSLs) are systems installed across 20 airports within the United States designed to avoid runway incursions, prevent collisions, and the loss of aircraft separation. Such lights, red in color, are embedded within the pavement of taxiways and runways. Development on RWSL began as early as 1992 by MIT's Lincoln Laboratory. History has shown, through events such as the Tenerife accident, the importance of developing systems to prevent runway accidents involving aircraft collisions. After proceeding with installation of over 170 lights in the real-world environment and collecting data across 8,298 aircraft operations, the FAA determined it was successful in meeting its objectives.

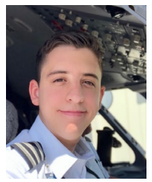
RWSLs are fully automated and independent from air traffic controller input. Pilots are aware of their existence through two main components: Runway Entrance Lights (RELs) and Takeoff Hold Lights (THLs). The first system intends to prevent inadvertent aircraft entry onto a runway from an intersecting taxiway. The second system aims to mitigate the initiation of the takeoff roll due to unsafe runway conditions, such as the presence of another aircraft or vehicle on the runway. Both systems play critical roles as parts of an ongoing effort to improve situational awareness and reduce the number of runway incursions and accidents, without interfering with airport operations.

Runway Entrance Lights (RELs) are an array of red lights focused along the taxiway centerline at the hold-short area. When illuminated, pilots should remain clear of the runway, due to another departing or arriving aircraft. When traffic departing reaches 30 knots, the lights illuminate. For arriving traffic, they illuminate when traffic is approximately one mile from the runway threshold. Lights then extinguish at each equipped taxiway approximately two to three seconds before the aircraft reaches it. Once the landing aircraft reaches 34 knots, all lights extinguish. If a pilot receives an ATC clearance contradicting the system, it is imperative to remain stopped and to contact ATC for resolution.

Takeoff Hold Lights are also red in color, but unlike RELs, they are a longitudinal row of lights aligned parallel to the runway centerline lights. Activation indicates to remain holding in position and not to start the takeoff roll. They automatically illuminate when two aircraft, or an aircraft and a surface vehicle, are present on the runway. When only one remains, the lights extinguish. Similar to RELs, query ATC immediately if a clearance for takeoff is received with the lights active. In the event they illuminate during the roll, proceed with the best possible judgement. Aborting the takeoff sequence may be the best course of action, if still practical for safety reasons.

During proof-of-concept, the RWSL achieved over 98% agreement with ATC-issued instructions. Accuracy of Runway Safety Lights is extremely high due to two primary reasons. First, it feeds from ASDE-X, a surveillance system using radar and satellite technology to track surface movement of aircraft. ASDE-X has a positional accuracy of at least 20 feet and has been paramount in improving safety over the years. Second, RELs are fully autonomous. As such, it keeps the system standardized for all users and has the potential to prevent a controller or pilot error. The only component controllers are able to adjust is the brightness level of the lights (five different levels), to accommodate for environmental conditions. Controllers can also turn the system off, in the event of a malfunction or anomaly, and a NOTAM would be issued accordingly. Pilots are reminded to always ensure their transponder is "ON", with attitude reporting, while operating on all taxiways and runways, to ensure the system interacts as intended with ASDE-X.

In summary, safety lights are another layer of redundancy in aviation safety, making it critical for pilots to understand their significance in preventing a runway-related accident. Their fully automated design offers protection against human error. Yet, it is important to emphasize they serve as a warning by indicating a runway status and do not substitute an ATC clearance.



About the Author

Sergio Sovero was born and raised in Lima, Peru, and is currently a captain for Delta Air Lines. Read More...



How to Avoid the Blues of Medical Certification When Taking an Antidepressant

Written By: Matthew Bulow

Can I Get a Medical If I Use Antidepressant Medication?

Yes. You can absolutely hold a medical certificate while using an antidepressant medication, but it will require special issuance. Further, you will need to follow the FAA's specific Antidepressant Protocol to ensure your treatment regimen is acceptable.

FAA Antidepressant Protocol

Mental health conditions such as anxiety and depression are often disqualifying for airman medical certification under 14 C.F.R. §§ 67.107(c), 67.207(c), and 67.307(c). Even so, the FAA has implemented a standard protocol when determining whether an airman may be granted an Authorization of Special Issuance under 14 C.F.R. § 67.401, which authorizes the airman's AME to issue them an FAA airman medical certificate under specific terms despite the disqualifying condition. Accordingly, if you are being treated with an FAA-accepted regimen, there is a good chance you'll be able to get a medical in your pocket.

The FAA's Antidepressant Protocol can seem daunting at first glance. There are several hoops that airmen must jump through to demonstrate their aeromedical fitness to the FAA, and navigating those hoops can be both expensive and time-consuming. But if you are willing to jump through the necessary hoops, then it is quite likely you will eventually be found eligible to hold an FAA airman medical certificate.

The first hoop requires airmen to establish an FAA-accepted treatment regimen. In the case of antidepressant use, this requires airmen to see their treating physician, therapist, counselor, and/or psychiatrist to get healthy. If the provider and the airman decide to begin treatment with an antidepressant medication, then they must select one of the FAA's "conditionally acceptable" antidepressant medications, which include common medications like Lexapro, Zoloft, Cymbalta, and certain formulations of Wellbutrin, among several other options. It is also important to note that the FAA will only consider airmen using a conditionally acceptable antidepressant medication as a single agent. So, airmen seeking FAA airman medical certification under the Antidepressant Protocol must establish effective treatment through the use of a *single* conditionally acceptable antidepressant medication, which means maintaining a stable mood with no symptoms or side effects while on the same dose of medication.

The second hoop requires airmen to document their mental health history and effective treatment. Once the airman has established effective treatment and continued mood stability while on a stable dosage of medication for at least ***three months***, then the airman should gather all records related to evaluation, diagnosis, and treatment of any mental health conditions.

Once you've established a stable treatment regimen and gathered the necessary documentation, you can begin seeing doctors for current evaluations. You'll start by seeing your treating physician (the person prescribing the antidepressant medication). They will verify that the airman has been on a stable dosage for at least three months and that the regimen is effective with no adverse side effects. Next, the airman must see a board-certified psychiatrist, who will complete an evaluation and report in accordance with FAA specifications. Note, if you're prescribing/treating physician is a board-certified psychiatrist, then they will only need to complete the documentation required for the psychiatrist. Finally, airmen pursuing special issuance under the Antidepressant Protocol must see a neuropsychologist and complete a CogScreen-AE and neurocognitive evaluation. If each of those reports are favorable, then the airman can put the final touches on their application for an airman medical certificate.

For airmen employed in aviation, specifically commercial pilots seeking a first- or second-class airman medical certificate or ATCS, a chief pilot or Air Traffic Manager report is required.

Once all the listed documentation and evaluation reports have been collected, the airman must see their HIMS AME to formally apply for an airman medical certificate. The HIMS AME will confirm that all the necessary information has been provided and then complete the required HIMS AME checklist and HIMS AME report. All the information is then submitted to the FAA's Aerospace Medical Certification Division for review, and a decision is rendered regarding eligibility.

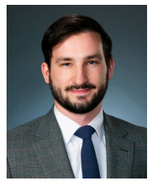
If the medication dosage changes during the application process or the airman decides to discontinue medication use altogether, then they will have to self-ground and provide further documentation for FAA review, often requiring them to restart at step one of the Antidepressant Protocol.

Recent Updates

In December 2025, the FAA made a noteworthy change to the AME Guide and its Antidepressant Protocol. For many years, since at least 2018, the Antidepressant Protocol required a six-month waiting period to demonstrate stability on a stable dosage of medication. In December 2025, the FAA reduced that waiting period to just three months. Accordingly, an airman who started taking a conditionally acceptable antidepressant medication in December 2025, when the change was made, and who has remained clinically stable on that same dosage, may now be eligible to apply for special issuance under the antidepressant protocol.

Navigating the Antidepressant Protocol

While the FAA's Antidepressant Protocol can be reduced to a few seemingly simple steps, the process is riddled with potential pitfalls and hurdles on the way to certification. To ensure that the process goes as smoothly as possible, it is usually a good idea to reach out to your HIMS AME or an aviation attorney with experience in medical certificate defense ***before*** beginning your journey to certification under the Antidepressant Protocol.



About the Author

Matthew Bulow, Esq. is an aviation attorney at Ramos Law in Denver, Colorado. Matthew currently practices FAA medical-certificate defense exclusively in... Read More...



BAGGAGE

Understanding and Managing ADHD Beyond Medication: Part 2

Written By: Reini Thijssen



Attention-deficit/hyperactivity disorder (ADHD) is often discussed in terms of challenges. However, living well with ADHD is very possible with the right approach and support. Through intentional structure and routines, healthy lifestyle habits, and evidence-based supports such as cognitive behavioral therapy (CBT), you can learn to manage symptoms more effectively. While the process requires patience and self-compassion, developing these strategies can lead to meaningful, lasting success. In part one of this two-part article, we discussed what ADHD is and what it is not. Building on that foundation, this article focuses on practical, non-medication strategies for managing ADHD in everyday life.

What is the most important insight for many people with ADHD? Stop trying to be "normal." You are not neurotypical, and you do not need to be. Many people struggle with feelings of shame and guilt. From a young age, individuals with ADHD are often told that they are "lazy," "messy," or "irresponsible." The pressure to meet neurotypical expectations can feel overwhelming. It is about recognizing that some things work differently for you, and that is okay. Think of ADHD as a different user manual rather than a defect. By understanding how your brain works and making the right adjustments, you can not only manage daily challenges but actually thrive, without forcing yourself into a mold that was never designed for you. Starting from this mindset is the first step toward finding strategies that truly support your strengths.

Improving Executive Functions

A short recap after the article from last month: What are executive functions? Executive functions are the brain skills that help you plan, start, and finish tasks, stay focused, manage time, and control impulses. When these skills are weaker, everyday tasks can feel harder; you may procrastinate, miss deadlines, lose things, or talk excessively. Struggles with executive functions can lead to stress, confusion, and, at times, guilt. You might see a long list of tasks and not start any of them simply because you have no idea where to begin. This can immediately feel like you have already failed. Executive functions are influenced by genetics, but they also develop through practice. The good news: there are ways to strengthen executive functions.

Creating Structure and Routines

One of the most important strategies for managing ADHD is establishing structure and routines in your daily life. This helps maintain focus and tackle tasks more efficiently. They provide stability and reduce stress and chaos in daily life. Tips for setting up routines:

1. Schedule

Plan your day with set times for meals, work or school, relaxation, and sufficient sleep. Establishing a consistent daily routine helps your brain know what to expect, reducing overwhelm and decision fatigue.

Pro tip: Include buffer time between activities to prevent feeling rushed, and break larger tasks into smaller, manageable steps.

Prioritizing regular sleep, nutritious meals, and short breaks for movement or mindfulness can also boost focus, mood, and overall productivity, making it easier to stay on track throughout the day.

2. Set Reminders + Make Lists

Create multiple reminders and alarms for yourself. Write checklists of tasks, even if they are very small. Seeing things clearly on paper makes them easier to tackle.

Work with physical reminders, like writing notes on your mirror with a white marker or placing sticky notes in strategic spots.

3. Break Tasks into Manageable Pieces

Feeling overwhelmed by the size of a task can make starting almost impossible. Try finding even a short block of time (just 15 minutes) to dedicate to the task. Often, once you begin, momentum builds, and you can keep going.

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4. Use a timer (such as the Pomodoro Technique)

The Pomodoro Technique is a time-management method designed to improve focus and productivity. Here's how it works:

- Choose a task you want to complete.
- Set a timer for 25 minutes and work on the task without interruption.
- When the timer goes off, take a short 5-minute break.
- Repeat this process four times (four "Pomodoros").
- After four Pomodoros, take a longer break of 15 to 30 minutes.

This technique helps make tasks feel more manageable and prevents overwhelm. The timer also provides a clear structure and a built-in reward— breaks—after periods of focused work.

5. Remove Distractions

Minimize distractions by keeping your workspace tidy and using tools like noise-cancelling headphones. Many people with ADHD also find that background music or ambient sounds can actually improve focus and motivation, especially when working on repetitive or creative tasks. Instrumental music, nature sounds, or even white noise can help keep your brain engaged without pulling attention away from the task at hand.

It is about finding strategies that work for you, not against you. Some people thrive in complete silence, while others perform better with a carefully curated auditory environment.

6. Organize

Maintain a tidy and organized living and workspace. Keep everyday essentials (like your keys, phone, wallet, and planner) in the same designated spot every day so you always know where to find them.

A consistent, clutter-free environment reduces distractions, prevents lost items, and makes it easier to focus on tasks rather than constantly searching for things. You can also add small visual cues, bins, or trays to further streamline your space and build routines that support your ADHD brain.

7. Lifestyle

Executive functions suffer when you are sleep-deprived or poorly nourished, so maintaining consistent sleep schedules and eating balanced meals can significantly support focus, planning, and impulse control.

- Sleep: Aim for 7 to 9 hours per night and try to go to bed and wake up at the same time each day. Consistent sleep not only improves attention and memory but also helps regulate emotions, making it easier to stay on task and manage stress.
- Nutrition: Eat a diet rich in vegetables, fruits, whole grains, and lean proteins to fuel your brain and body. Limit sugar, caffeine, and highly processed foods, which can cause energy crashes or interfere with focus. Eating regular, balanced meals also helps stabilize mood and cognitive performance.
- Exercise: Move your body at least 30 minutes daily. Activities like walking, jogging, biking, or yoga improve blood flow to the brain, enhance working memory, and strengthen attention and self-control.
- Pro tip: Outdoor exercise provides the added benefit of natural light and fresh air, which can boost energy and mood.
- Relaxation: Incorporate stress-management practices such as meditation, deep breathing, or yoga. These techniques help reduce mental clutter, increase self-awareness, and improve emotional regulation, key components of strong executive functioning.

8. Mindfulness

Mindfulness is the practice of deliberately focusing your attention on both internal and external experiences. Internal experiences include thoughts, emotions, and bodily sensations, while external experiences are events and situations happening outside yourself.

Early studies showed that mindfulness-based treatments could help reduce ADHD symptoms. Later studies suggest that mindfulness may improve attention regulation and foster a more helpful approach toward ADHD symptoms.

Exercise: Mindful Breathing with Focused Attention

One of the most widely studied mindfulness exercises for ADHD is focused attention on the breath. The steps are as follows:

1. Sit comfortably in a quiet space (or noise-cancelling earphones)
2. Close your eyes or soften your gaze.
3. Bring attention to your breathing, notice the inhale and exhale.
4. When your mind wanders, gently bring it back to the breath without judgment.
5. Start with 3 to 5 minutes per day and gradually increase to 10 to 15 minutes.

Research shows that practicing this consistently can improve attention regulation, reduce impulsivity, and help manage emotional reactivity.

Understanding ADHD Medications: Benefits and Limitations

Medication is not a cure. While it can help manage core ADHD symptoms, it works best when combined with behavioral strategies, coaching, therapy, and supportive environments. Medication can reduce distractibility and impulsivity, but skills, routines, and coping strategies are still essential for daily functioning. That is why combining medication with structured routines, behavioral interventions, and healthy lifestyle habits is often the most effective approach for managing ADHD.

Important Note: There are habits, strategies, and techniques that can help manage ADHD, but for some people, it may be difficult, or even impossible, to implement these strategies effectively without medication. Think of it like trying to ride a bike with the brakes partially engaged. You can pedal as much as you want, practice balancing, and adjust your posture, but you would not get very far because something is physically holding you back. Medication does not make you a better cyclist overnight, but it can release the brakes enough to allow you to move forward and put your strategies into action. While stigma around ADHD and medication exists, the focus should always be on what works best for you. If your doctor or therapist recommends medication, it ***can*** be worth considering as part of a comprehensive treatment plan.

Resources: Support and Self-Help

It is important to have a supportive network around you when living with ADHD. Talk with friends and family, join a community or self-help group, and find a therapist to discuss your challenges and successes. There are also many books, podcasts, and websites with valuable information and tips about living with ADHD. Some recommendations that focus on evidence-based information, practical strategies, and lived experiences related to ADHD:

- Book: "Taking Charge of Adult ADHD" by Russell A. Barkley
- **Podcast: "ADHD reWired" by Eric Tivers**
- ***ADHD reWired* explores real-life challenges, strengths, and strategies for managing ADHD.**
- **ADDitude** https://www.additudemag.com ADDitude offers easy-to-understand articles, tips, and tools about focus, organization, emotions, relationships, school, and work.

(Free) Apps

1. Structured
A visual daily planner that turns your day into clear time blocks so you can see what comes next. It is a drag-and-drop schedule that helps reduce overwhelm and supports time-based planning.

2. Forest
Forest makes staying focused feel like a game: start a focus session and grow a virtual tree. If you stay on task, your forest grows; if you leave the app, the tree doesn't make it.

3. Focus Friend
Pairs you with a virtual companion who "works with" you during timed focus sessions. The gamified experience helps reduce phone distractions and makes working feel less isolating.

4. Google Keep
Google Keep is an easy note and reminder app that syncs across devices. It is ideal for quick brain dumps, to-dos, visual checklists, voice memos, and color-coded notes.

5. Daylio
Daylio is a mood-tracking journal that lets you log emotions and activities quickly, without writing long entries. Tracking patterns over time can help you spot which environments, routines, or strategies boost or dampen your focus.

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🖍️ CBT Reframing Worksheet: Turning ADHD Traits into Strengths

Use this worksheet to take a trait or behavior you see as a challenge and reframe it as a strength.

Download Fillable, Print Friendly PDF

Step 1: Identify a Challenge
Write down a behavior or trait you find difficult.
Example: "I get distracted easily during long meetings."

My Challenge: _____

Step 2: Examine the Thought
What are you telling yourself about this trait?
Example: "I am lazy and can't focus like other people."

My Thought: _____

Step 3: Challenge the Thought
Look for evidence for and against this belief.

Evidence For: _____

Evidence Against: _____

Step 4: Reframe the Trait as a Strength
Transform the negative thought into a positive or constructive statement.
Example: "I notice details others overlook and can bring fresh ideas to the table. I just need strategies to stay on track during long meetings."

My Reframed Strength: _____

Step 5: Create an Action Plan
Combine your reframed strength with a practical strategy you can use.
Example: "I will bring a notepad to jot down ideas during meetings so I can stay engaged and use my attention to detail effectively."

My Action Plan: _____

Step 6: Reinforce the Reframe
Repeat this exercise weekly with different traits. Over time, your ADHD traits become tools rather than obstacles.

Next Trait to Reframe: _____

Final Thoughts

In recent years, there has been a shift in how ADHD is understood. Instead of focusing solely on challenges, researchers, clinicians, and individuals with ADHD are highlighting the strengths that often come with ADHD. Many successful entrepreneurs, athletes, and creatives have learned to channel their energy, focus, and creativity toward high achievement, showing that ADHD can be a source of innovation and drive when effectively supported. Embrace your unique mind, and you can not only manage ADHD but also excel, both personally and professionally.

With the right guidance and support, including services from Emerald Mental Health, your strengths can be harnessed in productive and empowering ways. Reach out to reini@emeraldmentalhealth.com or go to www.emeraldmentalhealth.com



About the Author

Reini Thijssen is a licensed mental health counselor (LMHC, LPC) and a certified life coach specializing in supporting pilots and individuals in high-demand professions both within and outside of aviation. She has been a writer for Aero Crew News since 2019 and covers various aviation-related topics... Read More...

Resources

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Workout Survival Guide: When the Hotel Gym Is All You've Got

Written By: Scott Darragh

You felt motivated today. Three legs down. You still want to train. You're staring at a 12-hour overnight, and you already know how this story usually goes—it's the hotel gym ... if at all.

So here you are. Standing at the door of an empty, slightly run-down, slightly depressing hotel gym with a treadmill that sounds like it's on life support, a dumbbell rack that tops out at 50 pounds and a vague urge to say, "This place is missing ... I'll work out when I get home."

We all know this feeling. and we also know the truth—you probably won't work out when you get home. This has been happening for months. Your slacks aren't fitting as well, you're more exhausted after trips, your low back aches and you crave sweets more than you used to. Flying feels harder than it should.

These aren't random annoyances. They're early warning signs. This is the well-worn traveler's path toward chronic disease—high blood pressure, insulin resistance, chronic inflammation, heart disease—and eventually chronic unhappiness.

If this description ha hit a little too close to home, good. Awareness is the first step out. Now let's talk about the HOW.

How do you separate yourself from the tired, overweight, stressed airline pilot and become the fit, motivated, healthy professional who rises above the obstacles of this job? We start with training. This "Get Fit for Flight" series begins exactly where most of us find ourselves too often—a mediocre hotel gym, with 45 to 60 minutes and limited equipment.

So, what can you do? What exercises matter most? How long should you train? What if the weights feel too light? And on and on …

Here's the answer most people don't want to hear: Resistance training is a more valuable use of your weekly time than cardio. I've covered the why in previous columns. Today we focus on execution.

Light weights don't mean light results if you know how to apply fatigue correctly. What follows is a dumbbell-only workout that will challenge strong people using nothing more than weights up to 50 pounds.

The goal is maximum muscle fatigue, minimal joint stress, and zero excuses. Plan for 45 to 60 minutes total. Rest 30 to 60 seconds between sets. Move slowly and with control. Stop one to two reps before failure. This workout is designed for airline pilots who aren't looking to compete in body building; its designed to give you a one-stop workout to dramatically reduce pain caused by sitting and increase your metabolic activity with muscle development so that you can feel BETTER FASTER.

I highly recommend watching a YouTube video or two on any of these workouts if you're not familiar!

Dumbbell Romanian Deadlift / Four sets of 10 to 12 reps

This exercise matters because travel destroys posterior-chain strength. Sitting for hours shuts down the glutes and hamstrings, which is why low backs start barking and posture collapses. This movement restores hip strength, protects the spine, and improves long-term metabolic health. To make it harder, slow the lowering to four or five seconds, add a two-second pause at the stretch, or perform single-leg Romanian deadlifts. To make it easier, shorten the range of motion, reduce reps to eight to ten, and prioritize perfect form.

Goblet Squat (heels elevated if needed) / Four sets of 12–15 reps

This is the safest squat pattern in a hotel gym. It trains the legs, core, and posture without heavily loading the spine. Elevating the heels helps counteract tight ankles from flying and shifts more work to the quads. To make it harder, slow the descent, pause at the bottom, or finish each set with controlled partial reps. To make it easier, reduce depth, lower reps, or use a bench as a depth guide.

Bulgarian Split Squat / Three sets of 8 to 10 reps per leg

Single-leg training exposes imbalances created by sitting and uneven movement patterns. This exercise builds serious leg and glute strength with lighter weights while challenging balance and core stability. To make it harder, slow the eccentric, pause briefly at the bottom, or increase reps before weight. To make it easier, keep the rear foot on the floor, shorten the range of motion, or hold onto a wall or rail for balance.

Single-Arm Dumbbell Row / Four sets of 10 to 12 reps per side

Strong upper backs prevent rounded shoulders, neck tension, and chronic cockpit posture. This movement balances pressing exercises and supports long-term shoulder health. To make it harder, pause at the top, slow the lowering phase, and increase time under tension. To make it easier, reduce reps, or limit range of motion initially.

Dumbbell Floor or Bench Press / Three to four sets of 10 to 12 reps

Pressing builds upper-body strength without excessive shoulder stress when done correctly. Particularly, floor pressing limits overextension, making it ideal for tired shoulder joints during heavy travel weeks. To make it harder, slow the lowering, pause just off the floor or chest, or alternate arms. To make it easier, use a neutral grip, reduce reps, or choose floor press if shoulders feel tight.

Loaded Carry Finisher / Three rounds of 30 to 45 seconds

Carries combine core strength, posture, grip, and conditioning in one movement. They reinforce standing tall after days of sitting and finish the workout without beating up joints. To make it harder, increase duration, slow your walking pace, or perform single-arm carries. To make it easier, shorten the carry time, reduce weight, and rest longer between rounds.

The big takeaway is simple —hotel gyms aren't the problem. Lack of strategy is. If you understand why each exercise exists and how to scale it, you'll never need perfect conditions again. Do this workout three times per week and you will be far ahead of the pack. Try this workout on your next overnight and see how your body responds.

Next month, we'll tackle my favorite—and least understood—topic: FOOD.



About the Author

Scott Darragh is an MSP-based 737 airline captain, former U.S. Army helicopter pilot, aviation officer, who holds a BS in history and journalism from Washington State University. Read More...

BUSINESS VECTOR



Personnel Demand and the Data Behind It

Written By: Christopher M. Broyhill, PhD, CAM, CCP

I'm not a huge fan of social media, but there are a few platforms that are less annoying than others and a few perhaps even potentially useful. I spend a few moments on LinkedIn from time to time and every once in a while, between the "look at me" posts or the trivial musings on leadership, I find some nuggets of data that interest me.

The first data point appeared in mid-January. A regulatory and training advocate, Nick Sanderson argued that we haven't seen the real pilot shortage yet. He says what we're seeing at the moment is artificial compression, not excess supply. He then cites a few facts:

- Hundreds of aircraft, airliners, business aircraft and cargo jets are parked waiting on engines and parts because of supply chain issues. When these jets return to service, crews will be needed immediately.
- New aircraft orders have not slowed, and OEM backlogs can stretch over several years. Every new airliner requires roughly 12 to 16 pilots to support it, and every business jet will require at least two.
- Global hiring pressure is building. Asia, the Middle East, and India are expanding aggressively, often with government backing. Once those markets loosen hour requirements or offer premium contracts, U.S. carriers will feel real pain.

He concludes that the pseudo-indication in the marketplace today that many want to believe signal the end of the pilot shortage is actually a pipeline bottleneck due to a lack of training capacity, insurance regulatory drag and narrow pathways for those seeking their Airline Transport Pilot certificates. He closes by saying, "When the parked metal returns and deliveries accelerate, the hiring whiplash will be worse than post-COVID." (Sanderson, 2026, used with permission)

The second datapoint came about a week later. Aviation consultant Kit Darby posted an airline-pilot hiring forecast of 7,500 pilots by the major airlines in 2026—the third highest total ever. The big four majors, American, Delta, United, and Southwest are leading the charge. The full breakdown appears in the table below.

Airline	**2026**
Alaska	250
Allegiant	-
American	2,000
Atlas	-
Delta	1,500
FedEx	-
Frontier	250
JetBlue	-
Southwest	872
Spirit	-
United	2,500
UPS	300
Total	**7,672**

2026 Pilot Hiring Forecast

Record years were 2022 and 2023 when the majors hired 13,000 and 12,000 pilots respectively. Before then, the airlines approached or exceed 5,000 pilots per year only four times in history. Darby goes on to say that the dip in pilot hiring in the summer of 2025 is clearly over and the likelihood of the majors exceeding 7,500 pilots in 2026 is high because they typically underestimate their personnel needs. (Darby, 2026, used with permission)

The final datapoint came in the form of an article that appeared in my email which I subsequently posted on LinkedIn. The article appeared in Aviation International News on February 5. The article's author, Kelly Lynch, quotes a report from safety specialist Argus International. Argus' data shows an increase in business aviation activity of 3.4% in 2025 over 2024, and increase in flight hours of 3.5% over the same period. The activity in all three operational categories was up, with "fractionals" leading the pack with 9.4% growth, a gain of 59,826 flights. Part 135 increased by 3.3%, or by 41,471 flights, and Part 91 edged up by 0.9%, or 13,520 additional flights" (Lynch, Argus: Bizav Ops Boom in 2025, Setting Stage for Strong 2026, 2026). The article goes on to argue that the stage is set for a strong 2026 for business aviation with an estimated 3.6 million flights for the year.

So, what inferences or conclusions can be made from these three datapoints?

First, the pilot shortage hasn't gone away and isn't likely to go away for a while. Yes, we can argue about what "pilot shortage" means. Is it a pilot shortage or a pay shortage? Is it an experience shortage or a body shortage? I would argue that the nuances or semantics of nomenclature don't matter. What matters is that there is a strong demand for pilots both in the airlines and in business aviation. Where there is strong demand, there are higher prices—that's simple economics. Those

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higher prices will continue to fuel pilot compensation growth that will outpace the growth of compensation in private industry into 2026 and beyond. Don't forget the airline contracts that were adopted in 2023, 2024, and 2025 all feature multi-year wage increases. Those increases will directly impact pilot compensation in our industry.

Second, a rising tide floats all boats in business aviation—and that's not meant to be a mixed metaphor. As pilot compensation in business aviation increases, so does the compensation for other flight department personnel. The survey data confirms that. Anecdotally, I've seen it. In most of the compensation studies I have performed, I have usually been hired out of concern over pilot compensation, but I end up analyzing the entire department and recommending increases for all personnel. On multiple occasions, when attending NBAA events, I've been thanked by non-pilot personnel from departments where my work had increased compensation levels.

Finally, these datapoints confirm that the personnel marketplace in business aviation will remain dynamic in the foreseeable future. If you're an aviation manager, you should be reviewing the compensation levels of your personnel at least annually. If you're a business aviation professional, you should be comparing your compensation versus the market with the same regularity. You can stay ahead of the train or get run over by it. If you have questions, you can contact me at drchrisbroyhill@aircompcalculator.com.

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MONEY

401(k) and Roth Catch Up Updates - *Explained in Plain English*



WRITTEN BY: BRENDA HILL, CFP

This week I came across an unusual video that stopped my scrolling and was able to keep my attention for a solid five minutes late at night. It showed someone with a blank canvas painting a picture from start to finish while following a tutorial on YouTube without ever pressing pause. There was something captivating about how each stroke seemed so easy on its own, but together they created something surprisingly complex.

That's exactly how I'd like you to approach today's topic. I'll walk you through each step in a straightforward way —each individual concept simple on its own, yet by the end, you'll see how they fit together into a clear picture of the new 401(k) limits, Roth catch-up rules, and how these changes may affect you.

Let's start with the foundation by introducing the three limits regarding 401(k) contributions (I'll use mnemonic devices to help).

1. 402(g) Limit: think of this as maximum that can come from your grit, in other words, this is the most you, as an employee, can add to your 401(k) plan. For 2026, this limit is $24,500.
2. 415(c) Limit: this is the combined amount that you and your employer can add to your 401(k) plan. For 2026, this is $72,000.
3. 401(a)17 Limit: the highest number of characters for the highest dollar – there is a $360,000 cap on the amount of annual compensation that is calculated towards employer 401(k) contributions. For example, if an individual earns $500,000 and the company contributes 10% to their 401(k), only $36,000 (10% of $360k) can go into the plan.

In many airlines, once the company "hits" one of the two bottom limits, a pilot will usually have the choice between receiving those funds as "spill cash" through their paychecks or allocate those contributions to different types of accounts available to them. For the purposes of today's topic, the focus will be on the first two limits: 402(g) and 415(c).

Now that we've painted the basic picture of the mechanics of these contributions, we can talk about the nuance of the catch-up contributions for anyone age 50 or over.

- If you turn 50 or more in 2026, employee catch-up contributions of $8,000 for 2026 are available.
    - This would make your annual employee 401(k) limit $32,500 ($24,500+$8,000)
    - As long as you are the one making this additional contribution, not the employer, your combined limit is also increased to $80,000 ($72,000+$8,000)
- To add another twist, if you turn 60 to 63 in 2026, there is an additional "super-catch-up" employee contribution of $3,250 that follows the same line of thinking.
    - Your annual employee 401(k) limit would be $35,750 ($24,500+$8,000+$3,250)
    - Your combined limit is then increased to $83,250 ($72,000+$8,000+3,250)

At this point, it's okay to take a few seconds to process all the numbers and make sure you understand them all. We're about to jump to the most elaborate portion of the painting—Roth Cath-Up.

- If you made less than $150,000 individually (not as a household) in FICA wages in 2025 (Box 3 of your W-2), you have the option for your catch-up contribution to be either pre-tax or Roth in 2026.
- However, if you earned more than $150,000 in FICA wages for 2025, your 2026 catch-up contribution MUST be Roth.

Practically speaking, this change brings some tax consequences to someone over 50 and earning over $150k in 2025 who was previously

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just contributing pre-tax to their 401(k). For a 55-year-old pilot in the 32% marginal tax bracket with no other unique tax situations, this will likely translate to an additional $2,560 in tax withholdings for 2026 (32% of $8,000). When divided by 24 pay periods in a year, we are looking at $106.67 less coming to each paycheck.

Although this rule may be somewhat disappointing to an individual who is used to only making pre-tax contributions, this can actually be of benefit years down the road. Retiring with Roth funds provides peace of mind by knowing that those dollars will never be taxed again, flexibility for lump-sum distributions, and is a helpful tool that can be used for tax planning and estate planning considerations.

On the other hand, imagine you already have a mix of Roth and pre-tax contributions, and you want to keep that ratio the same – how do you calculate what your "pre-catch-up" contribution should be? Here are the simple steps:

Calculate in dollars how much you intend to contribute to Roth by the end of the year.

- If you are 55, maxing out your 401(k), made over $150k for 2025, and wanting the ratio to be half and half, then you would have $16,250 pre-tax and $16,250 in Roth by the end of 2026 ($32,500 total).

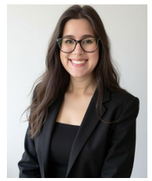
4. Subtract the dollar amount in Roth by the catch-up that you will automatically receive.
    - $16,250 - $8,000* = $8,250 (this is how much Roth you want from your "pre-catch-up" contribution)
    - *If you are turning between 60 to 63 in 2026, this number would be $11,250 ($8,000 + $3,250).
5. Divide the number you found by the 402(g) limit of $24,500.
    - $8,250 / $24,500 = 0.3367
    - In other words, you want approximately one third (33.67%) of your "pre-catch-up" contributions to be Roth and the remaining to be pre-tax to have a half/half ratio by the end of the year in this specific example.

Last but not least, some airlines will require employees to reach their 402(g) limit of $24,500 before starting catch-up contributions, while others allow for those to be done simultaneously. Additionally, you may need to adjust settings to positively elect catch-up contributions since the IRS rules have changed. **If you are not sure of your "enrollment status" for the catch-up, it may be a good idea to contact your HR department to confirm**.

If you've made it to here, congratulations! You now have a solid grasp of the big picture changes to the 2026 401(k) limits and Roth catchup rules. Taking a few minutes to understand these updates and evaluating if any adjustments to your contributions are needed can go a long way toward keeping your retirement plan on track.

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Brenda Hill is originally from Brazil and moved to Virginia for college, where she's been ever since. She earned a Bachelor of Science in Business Administration with a focus on Financial Planning...Read More...

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Rates Are Down and Pilot Pay Is Up: *Why 2026 Is Starting to Look Like a Window Again*

Written by: Jonathan Kulak, Trident Home Loans

For the few couple years, the housing market has felt like it was stuck in a holding pattern. Rates climbed fast, prices didn't come down much, and a lot of buyers hit pause..

But 2026 is starting to look different.

Pilot hiring is picking up again, upgrades are happening at both the regional and major airline levels, and pay is moving up across the board. At the same time, mortgage rates are running about 0.75% lower than they were at the peak of 2025.

That combination matters more than most people realize because when income is rising and rates are easing, the math starts working again for both purchasing and refinancing.

Why a 0.75% Drop Actually Matters

A three-quarter percent change in rate doesn't sound like much until you see it in real dollars. On a $500,000 loan, a rate drop like that can mean a few hundred bucks a month in payment difference. Over the first couple years of ownership, that's real money and it can be the difference between being "right on the edge" of qualifying versus being comfortably approved.

It also changes buying power. When rates go down, the same monthly payment supports a larger loan amount. So even if home prices haven't dropped much in your area, the payment can finally start to feel more reasonable again.

The Pilot Advantage Right Now

This year's hiring forecast is calling for 7,672 pilots to be hired by major airlines. That creates a domino effect:

- Regionals hire to backfill
- First officers upgrade to captain
- Captains move on to majors
- Pay increases follow the movement

For pilots, this matters because we're W-2 employees with contract pay. Underwriters can verify our income easily, and raises are often predictable. If you're upgrading seats, changing equipment, or moving to a new airline, you're likely improving your income picture which makes the mortgage side easier, not harder, as long as it is documented correctly. And if you're buying this year, that pay bump paired with slightly lower rates can be a strong one-two punch.

Most of the U.S. Is a Buyer's Market Again

Here's the other shift: In many parts of the country, buyers have leverage again. You're seeing more price reductions, more days on market, and sellers who are willing to negotiate instead of playing the "highest and best" game from 2021–2022.

That means buyers can ask for things that were basically impossible a couple years ago:

- Seller credits to cover closing costs
- Rate buydowns to lower the payment
- Repairs or concessions after inspection
- More favorable contract terms

Even if rates don't drop another full percent, a seller credit can sometimes create the same effect by lowering out-of-pocket costs or buying down the rate.

The Refinance Side: Don't Wait for "Perfect"

A lot of homeowners are still holding onto the idea that rates need to be back in the low five percent range before a refinance makes sense. Sometimes that's true — but not always. The right question isn't, "Are rates low enough for the internet to get excited?" The right question is, "Would a refinance lower my payment enough to be worth it, and does it make sense to my timeline?"

If you're a pilot who bought or refinanced near the peak of 2025 or before, you might be getting back into range where a refinance starts to look interesting again—especially if you can do it with minimal out-of-pocket costs and keep the break-even short.

Game Plan for 2026

If you're thinking about buying or refinancing this year, here's the simple playbook:

1. Run the numbers based on today's rates—not last year's.
2. If you're upgrading or changing airlines, plan your timing so your income is clean and easy to document.
3. Use the buyer's market to your advantage—ask for credits and concessions.
4. Don't become obsessed with "calling the bottom" on rates. Be ready to move when the deal makes sense.
5. If you already own a home, get a refinance checkup and know your break-even point.

Real-Life Example

Let's say you're looking at a $600,000 home putting 5% down. If rates are 0.75% lower than they were at the peak of 2025, the monthly payment difference can be enough to either:

- qualify more comfortably, or
- buy the same home with less monthly strain, or
- bump up your price range without changing your monthly budget

And if you're upgrading from FO to captain this year, you may have even more breathing room without needing the market to do anything dramatic.

Final Approach

Most markets don't hand you a perfect setup. Usually, it's either good rates and tough competition, or a slow market with expensive money.

But 2026 is shaping up to be a window where pilots have two things working in their favor at the same time: income growth and easing rates, plus a buyer's market (in many areas). You don't need to time it perfectly. You just need a smart plan, clean numbers, and the ability to move when the opportunity shows up.

www.tridenthomeloans.com/jonathan-kulak // This article is part of my ongoing mortgage series for Aero Crew News—helping pilots build smarter financial flight plans.



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Jonathan Kulak is a Senior Loan Originator at Trident Home Loans, a pilot/veteran-owned/operated mortgage lender licensed in 47 states which is located in Pensacola, Fla. He also holds an FAA Airline Transport Pilot and is a first officer with a major... Read More...



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The world's largest, most extensive, and supremely impressive HO scale world should be on your bucket list¬—especially WEE.

Written By: Deborah Bandy, Aero Crew News Editor





Here you can truly appreciate the 1:87 scale.

Imagine seeing three continents in one day but only one airport! That's what I did in November 2025 when I visited Miniatur Wunderland in Hamburg, Germany. It is amazing in too many ways to cover in this piece. See how vision, art, engineering and wonder conjoin to amaze all who behold. While pictures and videos help, nothing but an in-person visit can deliver the true impact. Special thanks to the marketing department of Miniatur Wunderland for providing many of these photos. Others and the videos are from my exceptional day visiting this amazing attraction.

Random videos that pop up in our feeds are often entertaining, sometimes educational, even enlightening, but none had ever inspired me to add to my bucket list. That changed one night when I happened upon a video about a remarkable attraction in Hamburg, a city I had never visited. That random video introduced me to Miniatur Wunderland, an HO-scale (1:87) spectacle of a dozen (and growing) regions of the world. Seemingly countless trains, trucks, cars, and even aircraft are laboriously and impeccably displayed with all the appertaining people, buildings, houses, vegetation, infrastructure, and detail that kept my mouth agape in amazement every hour I lingered. To say that the meticulous detail is inconceivable is an utter understatement.

As travelers, we have seen a lot, and a lot of what we see of cities is often from low altitude. Seeing the world at this scale is like hovering at 285 feet AGL with not even the tiniest detail missing. There are even examples of cultural whimsy that bring smiles of delight. For example, you can have a peek at the underground in Area 51—or at least someone's idea of what that might be. There is even an ongoing investigation into a body that has been found on a riverbank.

I spent hours weaving through the areas marveling at the engineering it takes to keep all this tiny unreality operating. The more than 18,000 square feet (and growing) display area is only a portion of the more than 68,000 square feet of space it takes to build, operate and maintain. One unanticipated bonus provides glimpses into the various workshops where the artists and engineers are working to bring to life future spectacles.

When asked what I liked best, my answer is easy—the Knuffingen Airport, the greatest technical challenge the designers, artists and engineers have faced to date. Model railways have been around since the iron horse was invented, but no model airport had ever been attempted. While Knuffingen has no code, it is a replica of HAM. (I think it deserves to be designated WEE.) According to the annals of Miniatur Wunderland, creation took six years, 150,000 hours of labor, 70,000 lines of code and four million euros to complete. The airport opened on May 4, 2011. Colloquially known as Star Wars Day (May the Fourth be with you!) may have inspired the sometimes-seen landing of a Millennium Falcon. I can't say. Though completely out of scale, a larger-than-life bumblebee also lands at the airport—the inspiration of which is a mystery to me, but whimsy does appear throughout in multiple vignettes.



On the "business" side of the airport, the realism is unforgettable. You'll see the fuel farm, emergency vehicles, employee buses, catering trucks, and every ground-support vehicle and representations of the personnel you see in the real world. No detail has been overlooked. The lighting is true to reality, too. There are over 40,000 LED lights on the runways and taxiways adding to the realism. I can only imagine what the underside of the airport display looks like, but they report there are over a hundred kilometers of cables connecting all the lights and sounds at this diminutive airport. Takeoffs and landings bring realistic sounds too, right down to the screech of the landing-gear tires hitting the runway. Amplification is realistically balanced with sound and action perfectly synchronized.

Beyond the taxiways, hangars, runways and ramps with all the activity on display, the terminal is "alive" too. They could have obscured the windows and left the interiors to our imaginations, but they did not overlook the raison d'être of the airport—people. Maybe you'll spot the unattended bags, but you'll not miss the lines of passengers awaiting service, and countless people doing what people do in airports, right down to eating overpriced meals.

Outside the terminal on the city side are hundreds of tiny cars in the parking garages, security vehicles, and a taxi queue so realistic it left my head shaking from side to side in utter disbelief. Just as in reality, taxi drivers are outside their vehicles chatting or perhaps arguing with their colleagues.











Operations at the airport continue into the night. The entirety of Miniatur Wunderland is on a 15-minute day cycle with 12 minutes of daylight transitioning to dusk for a three-minute night before dawn. Of course, the night cycle is when the impact of the lighting detail is most appreciated. We all know what airports look like at night, but to see the taillights of the taxi queue, for example is truly amazing. The scale of the lights is precise to the scale of the vehicles. How do they do that? The lights within the cabins of the aircraft are perfectly represented.

Knuffingen Airport (author-designated code WEE) is enough to wow anyone, but there is so much more. My second-favorite area is Rio de Janeiro, which opened in 2021 after approximately 60,000 hours of construction. Of course, it is depicting the most colorful, exciting time in Rio—Carnival. You'll recognize the city from Christ the Redeemer statue overlooking the city, Copacabana Beach, the working-class neighborhoods (favelas) to the Sambadrome where dancers and floats move to Rio's Carnival rhythms. It is truly remarkable what they have accomplished here.

One detail that overwhelmed me is the realism of the favelas. The depiction of these neighborhoods could not be more true to life. In so many areas of the world, less-advantaged communities suffer with the spaghetti of power lines at every corner. Even that is shown! How tiny are powerlines at 1:87 scale? I don't know but they do at Miniatur Wunderland.



Rio Sambadrome



Favelas of Rio de Janeiro

Scenes You Shouldn't Miss



Imagine a video screen so flexible it can be draped over shapes that move beneath. This is how the engineers and artists at Miniatur Wunderland accomplished depicting the rough seas where the Pacific and Atlantic collide off Patagonia. Beware, the realism can cause nausea! ***Watch the Video***



Miniatur Wunderland's newest addition is Monaco during the running of the Formula One Grand Prix race. Looking into the flats overlooking the racecourse, you'll see parties being held and avid fans on the balconies watching for the speeding F1 racers. There is plenty of activity on the yachts moored at the marina, too.

If I were to describe any more, I would not have space for all the photos I want you to appreciate. I offer my own sincere thanks and that of Aero Crew News to the marketing department of Miniatur Wunderland for having provided most of these photos.

Miniatur Wunderland is a destination! It is a very popular attraction—one of Germany's greatest, in fact. If you find yourself in Hamburg on layover, this is a place to see, but it's also a great destination with family. I saw many children equally enthralled as the adults. Everyone is amazingly close to every display, many of which provide interaction with buttons that trigger a remarkable action.

I encourage you to see some of the videos available on YouTube, some produced by professionals, that provide a real sense of this small-scale marvel, but no picture or video can give you the true sense of amazement this place provides. Book your ticket to WEE by way of HAM. And take the family!



About the Author

Deborah Bandy is the editor for Aero Crew News, among other endeavors. After a career in commercial advertising and marketing, she joined Embry-Riddle Aeronautical University...Read More...

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Inside The $50 Million Miniature World
Video that inspired my visit

Miniatur Wunderland HAMBURG



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