Aerospace Advantage Podcast - Episode 193 - Ready to Fight All Night: High Tempo Airpower Generation - Transcript

Heather "Lucky" Penney: [00:00:00] Welcome to the Aerospace Advantage Podcast brought to you by PenFed. I'm your host, Heather, "Lucky" Penney. Here on the Aerospace Advantage, we speak with leaders in the DoD, industry, and other subject matter experts to explore the intersection of strategy, operational concepts, technology, and policy when it comes to air and space power.

So, if you like learning about aerospace power, you're in the right place. For our regular listeners, welcome back. And if it's your first time here, thank you so much for joining us. As a reminder, if you like what you're hearing today, do us a favor and follow our show. Please give us a "like" and leave a comment so that we can keep charting the trajectories that matter the most to you.

U. S. commitments in the Western Pacific demand the capability to deny China air superiority. For the past several decades, the People's Liberation Army Air Forces have expanded dramatically. Consider that they fielded the J 20, their answer to the F 22, in less than 10 years. They now have over 200 J 20s, and they're building more at a rate of 100 per year. [00:01:00]

At the same time, U. S. Air Force capacity and modernization efforts have fallen well short of planned targets due to underfunding and hard combat use. The net result is that U. S. air power posture in the Pacific lacks the necessary combat capacity to either deter or prevail. Now, Air Force leaders have been saying it for years. The Air Force is too small for what the nation expects of us. And combatant commanders simply need more air power across the spectrum of conflict. Our limited capacity to generate high tempo air power limits joint force policy options. And this obviously degrades our ability to deter aggression and if necessary, defeat hostile adversaries in combat.

The threat is real, so we can't just admire the problem. We need to work solutions. That's why the Air Force must build the technical capability and numerical capacity to rapidly generate high tempo air power and then concentrate it in the right place at the right time. Collaborative Combat Aircraft, or CCA, promised to be a large part of the solution.

But the revolutionary change in CCA [00:02:00] acquisition and force employment also demands a revolutionary change in organizing, training, and equipping airmen. The air power capacity provided by hundreds of CCA, is a

first step towards that high tempo air power that we need to win. But to maximize lethality of these air vehicles, those CCAs need to be in theater, fueled up, armed up, and sent airborne by airmen.

And just to be perfectly clear. There's endless chatter about small UAS and lessons from hotspots around the globe. But when we talk about CCA, Collaborative Combat Aircraft, we're talking about group five unmanned aerial systems. And these aircraft weigh more than 1300 pounds and they can fly above 18,000 feet.

So, most CCA examples today are touting speeds of up to Mach .9 with 9Gs of maneuverability and integrated weapons and sensors. So you may have seen the Air Force's recent downselected two CCA vendors, General Atomics and Anduril. And these are the group five UASs that we're talking about when we say CCA. We like to think of them simply as uncrewed mission aircraft.[00:03:00]

So true readiness for high tempo air power means readiness to fight with these new CCA air vehicles. With new autonomy agents, like the one that Secretary Kendall rode along in an F 16 Vista demonstrator and a new brand of CCA supporting airmen. Who can prevail in a timeline that's relevant to countering China in the Western Pacific.

The Air Force's aggressive CCA acquisition, demands a departure from historical fourth and fifth generation fighter support. And this needs to be a deliberate plan from the very beginning for airmen to generate mass air power, at a higher tempo, and with a higher acceptable level of risk. Fortunately, the Air Force's Experimental Operations Unit, known as the EOU, is starting to develop these modern training techniques to successfully employ revolutionary operational concepts.

Bottom line, we need air power capacity. And to achieve the full potential that CCA can offer, we need as many of these aircraft airborne for as long as they can be and a key way to achieve [00:04:00] this is through rapid turn times. The less time a CCA spends on the ground, the more time they are creating air power effects in the air.

So, we will need airmen to turn them fast and push these airframes hard, in order to squeeze as much mission as we can out of them. Our friends in the Pacific are depending on it, and we're committed to it in the National Defense Strategy. It's the right thing to do for U. S. National Defense. So, here to discuss

this new concept of high tempo airpower generation is Lieutenant Colonel Gary "Plugger" Glojek, one of our Mitchell Institute Air Force Fellows.

Plugger's an experienced fighter pilot and a graduated fighter squadron commander. He spent two assignments in INDOPACOM, and he's flown in Thailand, the Philippines, Japan, Korea, and Alaska. Who is also in on the early development of Fighter Agile Combat Employment. He's learned many of these dispersed sorority generation and employment lessons the hard way, after landing on unprepared runways and spending cold nights in a tent under the wing of his jet.

Also with us today is Lieutenant Colonel Matthew "Doubled" Jensen, the Director of the budding Experimental Operations Unit, responsible for [00:05:00] advancing CCA sortie generation and employment concepts. Besides being an experienced MQ 1 and MQ 9 pilot,Doubled developed the Agile Combat Employment Operational Concepts, Tactics, and Procedures for the MQ 9 in the Pacific, which he called RACE, Reaper Agile Combat Employment.

And what a perfect term for the capability and capacity race we're in, and the likely race we'd be, in to position forces in the Pacific if this conflict were to ever kick off.

Plugger, welcome back to the Aerospace Advantage.

Lt Col Gary "Plugger" Glojek: Thanks, Lucky. And as the active duty Air Force fellow here at Mitchell Institute, I need to remind everybody that I'll share my own thoughts, and those don't necessarily reflect the position of the DoD or the United States Air Force.

Heather "Lucky" Penney: Perfect.

Doubled, welcome to the Aerospace Advantage, and thanks for taking the time to share your expertise with our audience.

Lt Col Matthew "Doubled" Jensen: Hey, I appreciate the invite. I'm happy to be here.

Heather "Lucky" Penney: So we're here in the National Capital Region, and whether it's a think tank, Congress, or the Pentagon, we tend to talk a lot about technology, platforms, acquisitions, and policy.

But it's important that folks never [00:06:00] forget that there are real airmen out there make the technology and platforms that we've acquired work, at the tactical and operational levels. So, there's logisticians and maintainers and pilots that are fueling and fixing and flying in real conditions. From the Middle East deserts, to Alaskan winters, to the humid and corrosive Pacific.

We can't tell you how excited we are that you and your team are getting to the bottom of what it will take to actually employ CCA. So I'd love it if you could start telling us about the Experimental Operations Unit or the EOU, what your mission is, what you're working on, and where you're going.

Lt Col Matthew "Doubled" Jensen: Yeah, sure thing. Thanks. I appreciate the opportunity to join you today, Lucky. So, a lot has changed in the past year since I jumped in the seat. We've been trying to figure out what CCA is and the purpose of the EOU. And we think it's pretty straightforward to start. Ultimately, we want to discover how to most effectively field and employ CCA capabilities. In a relevant timeline, and do that through prototyping and experimentation.

Heather "Lucky" Penney: So, [00:07:00] prototyping and experimentation, what I really like about that is you're really actually going into real world iterations of building something. Trying it out, playing with it, figuring out what works and what doesn't work, and then kind of going back to the prototyping. You know, the JCIDS, the Joint Capabilities Integration and Development System, that's really how we end up buying the things that we need.

And it's also how we validate that we actually do need the things that we buy.

Lt Col Matthew "Doubled" Jensen: Yeah, absolutely. And so the unique part of doing that iteration and working through problems, fixing it, and then building a new product is exceptional. And it's kind of the way industry does it, right? And especially startups.

And so we're starting to model that, as a do deal a little bit, at least on the Air Force side. And so what we're getting out of that is, instead of spending a ton of money trying to get it right the first time, we're just trying to go with cost effective solutions to find a good solution, iterate, and build something better and to do that in short order.

Heather "Lucky" Penney: Yeah. It's [00:08:00] commercial industry that does those kinds of iterations, not necessarily the defense industry. So what kind of lines of effort are you pursuing there?

Lt Col Matthew "Doubled" Jensen: Yeah. The biggest thing we've been trying to do as far as line of effort is DOTMILPFP. And that's a silly acronym, really, for Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Policy.

Heather "Lucky" Penney: That's quite a list.

Lt Col Matthew "Doubled" Jensen: Right? And so, it's not very common vernacular, I think until you get probably till, I don't know, O6 or Staff, or something, but really what we've determined that actually means is developing the force structure and the force integration for CCA. So how does a operational unit look like? Do we include maintainers? Do we have operators? Do we have pilots? Do we need pilots? Do we integrate in the force? How do we do have launch and recovery elements? How do we set up tactics, con ops, all those things. And then one of the biggest parts is the policy, right? [00:09:00] Is now we have semi autonomous platforms and getting through some of the limitations that policy has with it.

Heather "Lucky" Penney: So, how are you envisioning that kind of policy moving forward?

Lt Col Matthew "Doubled" Jensen: That's a great question. So the DOD 3000.09 kind of dictates what can be done with autonomous weapons and it's super restrictive actually. And so there's waivers for most weapons right now, because technically most of them, as soon as you set a target and pull the trigger, autonomously maneuvers and goes after targets and identifies them and, um, finishes the kill chain, right? Based on the logic and criteria that it was set in the mission planning.

So, a lot of the weapons we already have are semi autonomous in that nature. So when you take a platform that will potentially be launching live weapons through a 5th Gen fighter control, we have to look at how does that look and does it meet the policy? Does the policy need to be changed? And do we need to [00:10:00] look at certain language that allows for the legality of all that?

Heather "Lucky" Penney: No, I'm glad that you're really addressing that because the last thing we want to do is handcuff our war fighters because we have too restrictive a policy on the CCA based off of the policy that's been set and directed.

I mean, I know that when it comes to an AIM 120 fire and forget, once you get to that active, if I didn't have that little wingman doing the job for me, we would

be imposing a significant amount of risk, not just from a policy standpoint, from a kinetic standpoint, and a mileage standpoint. I mean, there's so many elements where it is crucial that we ensure that the policy and the rules of engagement, that we constrain our war fighters with, are sufficient to empower them to actually go win.

So, I'd like to shift away from the policy element and really focus on the warfighter, right? Because I think that's a key element, a key aspect of what you're working on.

Lt Col Matthew "Doubled" Jensen: Yeah, certainly. And to be honest, the warfighter is the most critical aspect of what we're working on. It might sound counterintuitive for [00:11:00] a system that's uncrewed and semi autonomous, but really, when we start talking about bringing capability forward, it's capability of the warfighter.

And so when we look at what the EOU is comprised of, we've got a very diverse background of the AFSCs, experience, and knowledge that will hopefully allow us to bring unique and novel concepts together. So, everything from maintainers, to logisticians, to supply operators, aircrew, cyber, engineers, intel analysts, you name it.

We're going to be bringing those people together in one team. To figure out the best way to actually create this new community.

Heather "Lucky" Penney: I love that. When you look at these kinds of diverse teams because, of their different expertise, because of their backgrounds, because they weigh the way that they solve problems, they can really create those innovative, those novel, those genius type approaches.

So, while CCA are powered by advanced autonomy agents [00:12:00] and you know, this promises unprecedented air power capability, right? I mean, when we take these uncrewed air vehicles and we can add sensors and communication nodes and weapons to an engagement, you know, all of this was established well over a hundred years ago.

If you go to the Air Force Museum at Wright Patt and you can actually see a 1917 Kettering Bug, it was a little rail launched uncrewed air vehicle. And if we read General Hap Arnold's and Dr. Theodore von Karman's 1944, "Towards New Horizons" documents. They were talking about forming and testing what is basically the, what you're doing today with the EOU, the Experimental

Operations Unit. Kind of going through that iteration and developing and learning and moving forward.

And even here at Mitchell our own General Deptula, he incorporated uncrewed target drones in Desert Storm. So, he force packaged them with air launch decoys to deceive Iraqi air defenses. And the purpose of this was to limit losses [00:13:00] and aid the location of surface to air threats, right? So how they were using these uncrewed vehicles to provide an operational advantage to manned platforms.

So, how does Air Force history inform your RACE concept with the Reaper? And how will it shape CCA employment in the Experimental Operations Unit?

Lt Col Matthew "Doubled" Jensen: It's a really great question. And when we start looking at how we move forward, I think it's really important that we all study history and understand where we've been, because it kind of, it allows us to inform and create better concepts and what we've come from, right? And so when we look at the race concept for our MQ 9, that concept was born out of necessity where you have a counterinsurgency weapon meant to operate in uncontested environments, has done so for 2 decades and done so well. But then we put in a contested environment in a high threat, peer adversary environment, A2/AD type environment. It really needs a [00:14:00] new boost to be able to maintain and survive in that environment, right? And we're not getting like counter anything, not, you know, not being flares, not being jammers, not being anything that will actually provide self protect for the MQ9, there just isn't any funding for something like that.

So, we had to get kind of novel and create ways to allow the MQ9 to remain relevant and to provide capability, because it really can provide some unique capability, especially in the ISR realm and long range kill chain aspects of it. So, really relevance driven necessity. And so from a historical perspective, we started leveraging a lot of examples from some of the crewed platforms, specifically in the World War 2 era.

So, we looked at the Flying Tigers in the Pacific, you know, they were led by Claire Chennault, and it's probably one of the best examples we looked at, I mean, like, they were really working with pilots and support personnel, to outmaneuver the enemy and do what we consider today operating out of austere [00:15:00] airfields.

And so, when we started looking at that and replying to the MP9, like this is unique, this is kind of how we need to be able to operate. We need to

outmaneuver since we won't have the technology to counter the enemy threats. And so we started working the concept and really the catalyst for all this was we had a new capability for automatic takeoff and land for the MQ 9 come together.

So, we took that applied it and married it with SATCOM. And that really cut the leash for a line of sight communications that are typical for unmanned remotely piloted aircraft. And so when we were able to get rid of the necessity to have a large footprint forward, we were able to then go, "man, we can, we can fly wherever we want now. This is great. We can just go from island to island if we need to." And so, that really just sparked a lot of ideas and the team in the operational test squadron really came out with some novel concepts that when it came down to it, we were [00:16:00] hopping from Guam to Palau, all around the Pacific using a four to six man maintenance team and about a pallet and a half of equipment. At each location and kind of letting the leash off the MQ 9, is pretty great to see.

Heather "Lucky" Penney: That's incredible. And I can see how that is absolutely applicable to how we want to be able to use collaborative combat aircraft in the future.

Plugger, I'd like to pivot the conversation to you because one of the recommendations for the Air Force from a recent, Mitchell policy paper on the need for collaborative combat aircraft for disruptive warfare, was to determine the logistics capabilities and operating concepts needed to support and sustain a high tempo of CCA operations in forward theaters. And we'll include a link to that report in our show notes. So, as a career fighter guy, what got you started thinking about the idea for high tempo CCA operations in forward theaters?

Lt Col Gary "Plugger" Glojek: Yes, it really was confluence of a number of experiences. And like you said, after about 17 years of flying ops and [00:17:00] leading airmen, since I've arrived here in the NCR, it's like we talk a lot about platforms, and weapons, and widgets, and policy and not nearly enough about the airmen who make all those things work.

Heather "Lucky" Penney: Yeah.

Lt Col Gary "Plugger" Glojek: So, coming from the Hog community, we started working on ACE back in 2018. It was right after the National Defense Strategy came about and it defined it as adaptive basing and we started building those smaller teams and smaller footprints and we are failing and learning and

honestly we are relearning a lot of the lessons that we had probably learned during the Cold War and we're doing that in a difficult way.

And while we're working-

Heather "Lucky" Penney: Not the way you want to learn that.

Lt Col Gary "Plugger" Glojek: Yeah, prefer not to when it's a 25 degrees and you're waking up in a tent and your tent heater doesn't work because you can't buy gas, but working on ACE, we also realized that we needed to bring back integrated combat turns. So, if you think back to Desert Storm, A 10 squadrons were low priority for tankers, so they were doing integrated combat turns, which means they were simultaneously refueling and rearming, while the jet stays running. The pilots are out there flying three sorties a day, as their standard, and [00:18:00] then they're doing incredibly fast turns between the missions, and that's something that they trained to throughout the Cold War.

But we stopped doing that you know, probably in the mid 90s. And then on an early ACE trip in 2019, we had a security forces trainer with us and he was a retired Defender and he had come from a GLCM unit, which is a ground launch cruise missile unit. And he was stationed all over Germany during the Cold War.

So, that was something I didn't even know about at the time, but he explained that they had long range, controllable flying missiles, and they constantly moved, they generated firepower with small teams. And then, that Defender, his name is KJ, he helped us relearn some of the small team logistics lessons and we started thinking about how we could generate air power differently.

And this is just an accrued, you know, 4th Gen platform. Another thing that I had to think about was being around the close air support community for so long. We're talking about ACE ideas and concepts one day in the bar, and we have a ground liaison officer. So, an Army artillery officer that worked in our squadron, and he walked up and he was like, what you guys are talking about is just Army field artillery.

[00:19:00] This is what we do. We set up, we generate and launch some firepower, we quickly move, and then we do it again before we can be targeted. So, kind of thinking about all of those pieces together as we're building the ACE concept for crewed fighters, but one final piece that was always in the back of my mind. I grew up with a dad who raced cars, and so we've always been around car racing, and I've always been in awe of the way pit crews work

together. You see these small teams to get the cars off the track, they get them back on the track and back in the race in just a few seconds. So, if you kind of synthesize all those experiences and consider the different disciplines and domains, and kind of the different solutions to different problems. Whether it's, Agile Comat Em ployment and integrated combat turns, the ground launch cruise missiles, field artillery, auto racing, bring that all together. And I think we can use CCA to be greater than the sum of its parts there. And we're going to need to generate a mass of air power sorties if we're going to gain your superiority in the Western Pacific.

And that's what we're going to need to enable the joint force to do their aggregated ops. So, I'm super excited about what [00:20:00] Doubled and the EOU are getting going and the concepts that they're going to forge in the next couple of years.

Lt Col Matthew "Doubled" Jensen: Yeah, I have to admit Plugger, after talking to you about the pit crew concept, I got really excited because it really applies to how we envision generating CCA and having a single team full of multi capable airmen, working together for a single purpose and turning jets rather than having you know, a bunch of patch together, airmen who might be intel security forces, what have you, kind of what the generals tend to suggest multi capable airmen might be, but rather know a highly trained, highly efficient team that is meant to get after one purpose.

Heather "Lucky" Penney: Absolutely. So, I've written before that the capability to generate high tempo air power to achieve air superiority, in capacity, is essential for the combined joint force.

I mean, airpower is a necessary precondition for every scenario ranging from peacetime persuasion to wartime hostility. And we know air forces are unique in their [00:21:00] capability to rapidly project power over long distances and provide policy options for US leadership while also increasing uncertainty for adversaries.

So, why do you think CCA are uniquely suited to generating higher tempo air power than crewed fighters?

Lt Col Gary "Plugger" Glojek: So, I keep thinking about high tempo airpower reminded me of Boyd's concept of fast transients, and so what he said is that if you're going to win, you have to operate at a faster tempo or rhythm than the adversary, and then you have to inhibit their ability to adapt.

So, I foresee CCA augmenting the airpower capacity. But also permitting that rapid generation because of they can do it on smaller runways. It actually sounds really weird for me to say, and I probably would be shot in the bar for it, but unhindered by the air crew. So, not only do you have more air vehicles, you need that capacity, but also the rapid generation of those air vehicles can quickly be get that higher tempo air power and that'll drive more ambiguity for the PLA. Which will then inhibit their ability to adapt, just like Boyd said.

Heather "Lucky" Penney: Absolutely. I mean, if you have these [00:22:00] CCAs airborne, you have the effect of greater capacity as well. So if they're airborne, they're executing mission effects. They're not inhibited by sitting on the ground and having those longer turn times.

So, fielding capable CCA, it's utterly imperative to solving the fighter generation shortfall. So, how do you see the CCA solution being different than just increasing the capacity of crude fighter generation and the number of airfields that we can operate from in the Pacific?

Lt Col Gary "Plugger" Glojek: So, let me kind of break down how I look at the problem, first of all.

So, I think first of all we just have an inadequate fighter force capacity in the Western Pacific. We can't maintain the high tempo air power operations that we need to gain air superiority and enable the joint ops. So that's the first part. The second part is I think we have limited capacity in the Air Force generation structure to deploy the sufficient number of follow on fighters.

And so even if we could, right? Even if we could flow all of our fighters across to the Pacific or even, you know, across the Atlantic, those would take a ton of strategic airlift, the tankers and the cargo that are going to be in super high demand, [00:23:00] especially in the first couple of days of a peer fight.

So, for that reason. I think the TPFDD forces or the time phase force flow deployment forces, they're somewhat irrelevant to that initial concentration of high tempo air power that we would need. Um, and because of that are the policy options for our leaders are limited. The third aspect of it would be that our current fighter generation model is focused very much on efficiency and safety.

And that's been necessary during the peacetime, the low intensity conflict over the last couple of decades. But that's going to hold us back from squeezing all of the air power we need out of the force we have in a peer fight.

Heather "Lucky" Penney: So, how do you see CCA providing solutions to some of the problems you just talked about?

Lt Col Gary "Plugger" Glojek: Yeah. So, the solution to the first part of that is just developing and then positioning hundreds of CCA. That's the first step towards credible capacity. Get them in theater and get them working, right? To the second point, I think CCA also offer the ability to rapidly deploy from wherever they're stationed in CONUS, to overseas with a much lower [00:24:00] logistics tail, and that can go for any theater.

If you're keeping a large portion of your force in CONUS and you have the ability to rapidly deploy, you can send it responsively where you need to go quickly. So, that flexible force and can self deploy think of a train of CCA that are hopping across the globe going either east or west, whichever direction we need to go and they're stopping a friendly locations on the way where you've got these little teams that are trained to quick turn them and then send them on their way into the area of operations.

So, as opposed to the, AOS movements that you and I have done over the ocean and crude fighters, right? There's no shutting down, there's no broken tankers, no human factors, no crew rest, no pill packs, no poopy suits, no snacks. They can just go and deploy with quick stops and they're in the theater in hopefully, you know, a day or so.

Heather "Lucky" Penney: So, this is a lot like the island hopping that Doubled was talking about with a small team of four to six folks and maybe a pallet and a half or so. So, the logistical footprint is that much smaller and that's what enables the rapid generation.

Lt Col Gary "Plugger" Glojek: But think of that as scale with fighter capability.

Heather "Lucky" Penney: Awesome.[00:25:00]

Lt Col Matthew "Doubled" Jensen: Yeah that, that all sounds great. And I hope those ideas come to fruition. And I think my team's actually the ones in charge of figuring out how to do that. The challenge is of course, actually making that happen in a contested environment. And so when we start looking at, so we get to the point to where we can ferry CCA rapidly throughout the Pacific, the challenges is there's only so many runways between the US and Guam, and then when you get to the first island chain, you know, there's quite a bit more options, but then you move to a much more contested environment. So

I, think to your point, the key is having a little bit or a footprint forward deployed. So, that way they're already there. We don't have to worry about the logistics to get them out there.

Because the challenge of just being able to get all the CCA in the air once they're forward deployed, will be enough of a challenge. And so, we all get super excited about the tactics that we're going to be able to employ with CCA, especially in the air to air domain. [00:26:00] And really, none of that matters, and we'll say the logistics in place to enable that. And so, one of the quotes I've always liked referencing and come across from time to time is from General Bradley in World War 2, which you said, "amateurs talk about tactics and professionals study logistics." And there's been a couple different paraphrases of how that might be said, but the point being made, you can talk about strategy or tactics all you want, but without logistics you're really not going to be able to execute any of that.

Lt Col Gary "Plugger" Glojek: And then Lucky if I can finish up on that last point on force generation, that's probably the biggest aspect that I've focused on. So, I think once we have fielded CCA units, they can focus on operational air power generation over the long term efficiency. And so we also need to manage risk differently for a high end conflict.

So, our current air power generation models balance sortie generation with long term fleet health. And anybody who's been in a fighter squadron or a fighter generation squadron or probably any, you know, air force [00:27:00] squadron understands that constant balance. Do you want your bicycle next week or your ice cream cone today, right? So, that should be a much lower focus for CCA, I think due to the features that they have, like proven commercial engines and then an overall reduced life expectancy for the air vehicles. So, CCA ops need to focus on an operational sortie generation, and I think they need to do that on the runway or on the taxiway, and that's how they squeeze every bit of air power out of the force that's actually in theater.

Heather "Lucky" Penney: So, just to break in here, I think one thing that's really important is this notion that we don't need to really focus on keeping CCA alive for 8,000, 12,000, 20,000 hours. We're not looking at these vehicles as long term vehicles that we need to sustain and maintain their component health for that long, because they're a lot more like batteries in terms of how we want to use them, right?

Lt Col Gary "Plugger" Glojek: If we're talking about post operations, like, let's lengthen the time of that pulse and let's spread out the area of that pulse, so

we can actually aggregate all of our forces and do joint ops and really breaking the door. Um, but there are a lot of other ways I think, too, that can [00:28:00] increase our flexibility and survivability over, you know, what we've done in those crude fighter aircraft that, have probably have a limit of like, 12, 000 hours on them, right?

That ability use shorter runways for one, without arresting gear, in bad weather, and then having a modest generation team that should all dramatically increase the the number of airfield options that are out there. So, we can launch and recover and deploy those reserve CCA throughout the Pacific to, you know, smaller airfields with less support and I'm hoping the autonomy agents aren't worried about the ceiling and visibility requirements for their approach, right?

But then if you can get to more landing zones, then your dispersed CCA operations should induce like more ambiguity for the enemy and as they're attempting to use their long range precision fires to target you or to target the CCA, they're able to continue to move around. Then, if the enemy does happen to strike a forward operating base, with those shorter runway requirements, the CCA have a greater number of places that they can recover or even divert to.

So, think partial runways, think taxiways, think even roads that would be relatively straight and just barely long enough. [00:29:00] They should also have lower landing weights than we're used to with normal fighter type aircraft. So, that should reduce some of the load bearing concrete restrictions that we've seen on landing surfaces before.

Also, a unique capability that I think the CCA will bring is what we've called, at least when I was in Korea, we call it launching for survival. So if you know there are missiles in bounds, jets are safer airborne than they are on the ground. So, if you can launch them quicker within the time of flight of those missiles, you can save your force.

So, there's probably also an ability to launch and then assist the launch base in their base defense. So, if we think about the recent Iranian attacks on Israel, where Iran's launching, like, 110 ballistic missiles, like, 30 cruise missiles and hundreds of kamikazes, small UAS, unmanned aerial systems, and we have our fighters, US fighters shooting down reportedly, like, 70 of those. Imagine a constant flow of air to air capable CCA launching, even from the base that's targeted, on short notice, executing quick turns, maximizing their time airborne, and then just [00:30:00] defending an entire area against those ballistic missiles, those cruise missiles, and those small UAS and doing that with very few crewed fighters in the air and over a greater geographic area.

So, to kind of summarize all of that in terms of the generation solution, I think the reduced infrastructure requirements of CCA should increase both flexibility and survivability. But there's a big catch, the catch is that we need the trained airmen who can rapidly generate the high tempo airpower and probably beyond the scope of today's discussion, but we need the fuel and those, and the weapons that are pre positioned in a dispersed posture, before we call for the concentrated air power.

Heather "Lucky" Penney: Absolutely, Plugger. I mean, that was something that both Doubled had brought up as well as we've addressed before is that we need to think about how do you pre position the necessary resources in order to be able to enable this kind of agile combat employment.

And that's true whether or not you're talking about fighters or CCA. Doubled, how's the EOU looking at collaborative combat aircraft design and training the airmen to optimize air power generation in some of the ways that pluggers describing? [00:31:00] You know, those are all really great theories, but we also do need to make them reality. And so there's tasks that small teams will need to complete. How do you imagine or how do you see these small teams keeping the CCA where they're both more lethal and more survivable?

Lt Col Matthew "Doubled" Jensen: Yeah, I agree fully that those are all really great theories, but when reality sets in, I think we're going to find a little bit of a different answer.

Mainly, Plugger's focusing on the what and we need to figure out the how, and his ideas are great, and honestly, they're very much in line with what we're doing. But what he's describing requires specific and advanced autonomy behaviors for CCA at scale. So, what does that mean? Let's just take the Launch for Survival concept. It's one thing to have a 12 ship of call it A 10s with pilots jump in the seat, quickly went through their checks and taxi and take off in sequence. But how do you get a fleet of call it 12 CCA to power on startup, accomplish their checks, taxi and [00:32:00] take off faster than the time it takes for a DS 17 to strike, right? That's a very short timeline. And when we start getting into it, it sounds like, "Oh yeah, we'll throw autonomy at it and that will be the answer." But we have to figure out how many maintenance it takes. We want to get to a one to many concept where there's a single team that is needed to launch multiple CCAs rather than multiple airmen launching a single aircraft, but that's going to take time and it's going to take a reliance on autonomy.

And then how do we know, or how does the CCA know when and where to taxi? How do we get the CCA to do that as a formation and not be a hazard to

themselves or anything else on the airfield for that matter? Who gives them the authority to take off? Who's clearing the runway and departure path for the conflicts? And, you know, these are the kind of questions we have to get after and ultimately, we're trying to get after CCA to execute these actions with minimal human input, either on the loop or in the loop.

And that's where the challenge lies. So, we have some ideas on how to [00:33:00] answer some of these questions. Usually, the quick answers is just more autonomy or autonomy will solve all the problems, but there's a lot of development that has to happen before that can be the case. And so, really, when we look at the concepts that Plugger is talking about, the biggest challenge is getting the basic administrative tasks associated with aviation to get accomplished, right? And so it's once we get there, CCA in the air, it gets pretty easy or so we think. The challenge is going to be all the things on the ground, the supply, the logistics, maintenance, and then the operations to just get them airborne.

Heather "Lucky" Penney: I'm glad you're bringing up the nuts and bolts because that's really the devil is in the details. And we tend to focus when we talk about CCA, how we're going to use them and employ them once, once they're airborne. But oftentimes it's really just the ground operations that you brought up that can be incredibly complex. Which is one of the reasons why I'm glad that you come from a background with the Reaper, because with those, that autonomous takeoff and landing, you [00:34:00] also are going to have to deal and think, you've got a background where you can think about how you do that autonomous taxi, start, shut down, types of procedures.

Lt Col Matthew "Doubled" Jensen: Yeah, for sure. And from an airman perspective, you know, we're looking at maintenance and what we call ACE-ability, as being built into CCA from the design. So that's great, we're actually designing aircraft with minimal maintenance input and ease for maintenance and all those things.

Lt Col Gary "Plugger" Glojek: And Doubled, I think you and I have a very similar vision of the small team of three to four airmen and NCOs who train together and operate together to turn those CCA. Meaning they recover the jet as soon as it lands, quickly refuel it, rearm it, retrieve data, upload new data, and then hand it back off to relaunch another sortie, like hopefully in single digit minutes.

We're probably not talking seconds like F1 or NASCAR, but we're also not talking the 3 hour peacetime fighter turn or the 1 hour fighter integrated combat

turn. And that's, I think, where you're saying, you know, you need to question what we've done in the past and kind of break with convention on just the concept [00:35:00] of how we're going to turn these things and keep them airborne.

We need to maximize that air power during a pulse or an aggregation of forces, and that's what's going to help us you know, during the joint operation to enable the rest of the force.

Lt Col Matthew "Doubled" Jensen: Yeah, to pile on to the your concept, right, of the pit crew, which I think we're going to find a way to, trademark or something like that.

Really, when we start looking at it, we've been getting a lot of. Guidance to do things differently with CCA, right? And a lot of latitude to try new novel concepts. And so I think that's going to give us a lot of opportunity to get after these ideas. And even MQ 9, right? We started doing integrated combat turns and we got with weapons reload and refuel from chalks-to-chalks in under 30 minutes.

So, there's precedent already for that to happen. And then along the same lines for the guidance of doing things differently, CCA, we're trying to, as part of the culture for the EOU, set an idea that we're going to question everything. We're going to question every requirement, every habit, every tradition, every regulation, [00:36:00] every policy, all in attempt to really discover the most effective means of delivering that combat capability we're looking for, for the warfighter. And so we're already finding that people are resistant to all our questions and asking why, but it's going to be worthwhile.

Lt Col Gary "Plugger" Glojek: And I can imagine on a crucial day in the fight when the ATO doesn't have like takeoff and land times, but instead it just says, Max CCA, right?

Just during this window during this pulse, I want as many airborne as possible. You get every CCA that you can in the air for 23 plus hours. And that's a ton of sensors and a ton of weapons in the air. But I also know that's going to take real action and real experimentation to get there. And I'm really glad you guys are on it.

Heather "Lucky" Penney: No, that's amazing because what we found with Mitchell when we've been doing our CCA war games is that a key component of CCA and how they contribute to the overall campaign is that they detonate

this, they disrupt, and they degrade, right? So, they're going to detonate adversary tactics, they're going to disrupt the adversary's [00:37:00] game plan, and they're going to go ahead and degrade their weapons magazine because they're going to soak up a lot of those missiles.

And so having as many CCA airborne as possible, all the time, does so much to relieve the stress and the risk that's imposed upon manned combat platforms. So, gentlemen, to do all of this, what we'll need to do is we'll need to have small teams that can do lots of different things. So skill sets, multiple skill sets per airman. So, how are you thinking about incorporating multi capable airmen into the mix? What does that mean for this kind of operation?

Lt Col Matthew "Doubled" Jensen: Yeah, I think multi capable airmen is the baseline assumption as we develop this community. So to Plugger's point, the pit crew concept, I not only think that's the way forward, but I think it's the, it's a fun concept to experiment with.

I think once we get airmen in the mix and we start training them, they're going to be really psyched about being on a high performing team. With a critically important mission, it might be one of those things that seems kind of simple, but I think when, you know, [00:38:00] and this will start flying, the bomb started dropping, everyone's going to be looking to those teams to really perform.

And the key to developing this concept is really being AFSC agnostic or potentially creating a new AFSC altogether. But ultimately, we can't just patch together a team and hope they have the skills needed to just launch rapid, or a large amount of CCA and rapid succession. And so we're talking about a well trained team dedicated to the event in which they're going to execute regardless of the scenario.

You know, what does that mean? They're all equally trained in all aspects of the launch or sortie generation. And, you know, casualties are going to happen, it's part of war. But when, if you have a three to four person team, if you take a casualty or two, that team's still able to continue because they don't need to rely on the specific skill sets an individual had. They all have the same skills and are able to fill in when needed.

Heather "Lucky" Penney: Yeah, there's no single point of failure.

Lt Col Gary "Plugger" Glojek: And Lucky my take [00:39:00] on multi capable airmen. My observation over the last few years is that the Air Force has been working primarily just on those basic expeditionary skills.

We haven't quite realized the real vision of multi capable airmen. And that's again, just in my experience. But with that in mind, as I was looking at auto racing and pit crews, I realized that the NASCAR community went through a big transition a couple of decades ago, where they stopped recruiting mechanics for the pit crews, they started recruiting professional athletes.

So, you don't need to be able to rebuild a carburetor blindfolded. Yes, that actually was a test for pit crews back in the day. In order to change a tire quickly. So we need to recruit our multi capable airmen, at least the ones that should be quick turning our CCA for things like athleticism and attitude.

I think that can be like Doubled said agnostic of AFSC. So, let's find those former high school athletes, the guys and girls that are still in the gym every day and that want to win. This is about generating under attack. We need the athletes who are physically and mentally strong. The ones that have the endurance, the ones that can handle combat pressure.

And the ones that can generate sorties while they [00:40:00] are under attack. So, beyond recruiting and selection, which I obviously think is really important. I think there's some awesome opportunities, you know, in 2024 and beyond to start training airmen on things like, you know, virtual reality, augmented reality, extended reality.

This can start slow. I can start with learning the basic systems just like some of the maintainers at Shepherd are already doing. They have multiple programs set up there that are, you know, already pretty developed. I think Doubled and the EOU can use augmented reality, to learn those initial lessons and then hopefully become more efficient.

And then once they've got a standardized process, they know where to stand, what to change, who has what role on the team, kind of like in an F1 or NASCAR pit crew. Then they can make those the best practices and write the manual on how it's done. And once that system's in place, hopefully our multi capable airmen around the world can use ARXR to train on CCA mockups.

So think, you know, whether it's like a basic inflatable mockup or a pretend airplane that looks really close to being the same, they can do reps and [00:41:00] increase the complexity. So, just like we've done in aircraft simulators. So you start off with, you know, how do you start the jet? How do you taxi around and take off land, flight approach, whatever it is.

They could start with the basics of, you know, fueling, loading weapons, data on and off the air vehicle, and then they can work up to full mission profiles that are including things like battlefield effects, air vehicle malfunctions, and then also forcing the team leads to make some difficult decisions like we do when we do emergency procedure simulators.

So, I think they can do that on in hangars and on gym floors at any air base in the world. If you have the right equipment and at some point, all those teams can be certified and they can deploy to the theater and they could be ready to build the CCA deployment bridges across the Pacific and the Atlantic wherever they need to go.

And then be ready to generate air power in combat.

Heather "Lucky" Penney: Absolutely. And as much as we want to be also be able to rely on the virtual reality and augmented reality and so forth to train them so they can operate quickly. There is a point where machines need to be operated themselves. And you actually to have the hands on capabilities.

So, a mix of all of this, I think is going to [00:42:00] be very important. And I also love what you're talking about regarding this needs to be about athleticism, and grit, and attitude. It doesn't necessarily have to be about specific operational expertise, especially if you want these multi capable airmen to be able to operate different types of CCA across the Pacific.

So Doubled, you talked about how you're questioning everything and you're going back to basics and you're questioning everything. What are the barriers that are holding you back from moving forward that you'd like to point out?

Lt Col Matthew "Doubled" Jensen: Yeah, I wish I could answer that question, say there are no barriers and we've been given the keys of the kingdom. And while that's partially true, we are given, we have all the support we need from our leadership. Let's make that clear. But bureaucracy is what it is. And so we have some challenges and I'd like to say the, our biggest challenge is inertia. And by that, I mean, we're fighting against cultural inertia.

Change is really difficult. People and organizations are generally opposed to change. Whether or not they recognize it. [00:43:00] And so we've been charged with figuring out how to do things differently. And that initial charge was meant to figure out how to use CCA differently, right? But much like innovation, it's a mindset.

So, I can't ask my team to show up on Friday and innovate if they haven't been doing that all week. Same thing goes for doing things differently. I want my team to think about everything we're doing differently. So that way, when it comes to CCA, that mindset is already ingrained and we're already moving forward with that.

And so, it's been my observation that everyone agrees we're overly conservative and risk adverse as a force. It's a little bit of a carryover from coming out of the Cold War, declaring victory, deciding to throw it back, and then spend the next 20 years on the War on Terror. That's a lot of inertia to overcome, and trying to get that mindset is really critical, and trying to communicate that to other organizations is part of that difficulty that we're talking about.

Heather "Lucky" Penney: And we absolutely have to [00:44:00] overcome that cultural inertia and risk aversion that has been endemic to the operations we've executed for the past 20 years.

Lt Col Matthew "Doubled" Jensen: Yeah, absolutely. And so the other aspect that is really kind of a challenge on a day to day basis is risk and much to what plugger mentioned already, you know, there's a little bit of understanding what risk is and how to define it.

And really we need to understand risk from definition, to concept, to actualization and have a common vernacular and what that means. So when you go, there's nothing different between peace, time, war time training, tests, it's all the same. So, everyone understands the words mean the same thing.

And so when we talk about risk, there's an inherent lack of understanding of the definition. And so a lot of times what we're seeing is people conflate the word risk with challenge or obstacle, or maybe a dilemma, right? But not really risk. [00:45:00] And so we're trying to get people to contextualize it a little bit differently.

And so, a perfect example, what we've talked about this past week was if you take a graph and you go take a concept from developmental tests, to operational test, to operations and training, and then the combat, you see that there, the risk acceptance is really low on the developmental side. And then it increases a little bit in operational tests and then operations.

But then in combat, we similarly accept all the risks and we chalk it up to, well, it's combat. So, we'll accept everything that's needed. And then we thought about like, it should be the complete opposite. We should be taking a lot of risk

in development and operational tests. And then as we train and get people proficient, the understanding what risk actually is and when and where to accept it.

By the time they get to combat, it should be very clear and then there should be an equal understanding throughout on, hey, we know what risks we need to succeed in this mission and [00:46:00] the points at where we can increase risk and share risk, or transfer risk, at the appropriate level. And that all gets into acceptable level risk and making sure that we're using that throughout the force.

Lt Col Gary "Plugger" Glojek: So Doubled, something I'd add there is, I think it's important to define the conditions based authorities for risk acceptance kind of up front, right? But then, like you said, it can't be this huge gap between what we do in training and what we do in combat. Those decisions need to be exercised. So maybe under a certain set of conditions, someone has the authority to launch CCA or to turn CCA quickly or to not use a checklist.

And I think you need to exercise those decisions when it's peacetime. And I think there are several barriers that we need to recognize and overcome that have again, all been in the name of efficiency and peacetime safety, but they've hindered fighter agile combat employment training and integrated combat turn training in the combat air force.

The things like proximity to operations. So, I think, eventually, CCA, at least in combat, should be generated right there on the [00:47:00] taxiway or the runway while we have ops ongoing. Think of that in terms of, like, the pit crew the, race car just pulls off into the pits, they turn it where it is, and it goes straight back out. That's not how we operate now, and there's a really good reason for it, but if we want to gain the advantage in combat, and again, squeeze every bit of air power out of the force we have, we need to accept some of those risks and then press on just like those pit crews accepting risk in the pits. A couple of quick examples that in combat, we need the flexibility to use forward arming and refueling points anywhere on an airfield.

Right now, there's usually only one or two approved spots, and they're way out of the way and inefficient. We need to forego things like lightning protection. You guys have probably seen F 35s parked at some base, and each one has its own individual lightning rod. There's some things like that we probably need to, you know, recognize when we're going to accept that risk.

Currently, our Agile Combat Employment, our Integrated Combat Turn, and our FARP training, our Forward Arming Refueling Point training, it's usually

hindered by things like, where are the grounding wires, where are the fire bottles, where is the air filled firefighting, where [00:48:00] is the net explosive weight arc for the munitions?

Is there explosive ordnance disposal around? There's all of these little things that are really good for de risking peacetime operations, that we need to have a plan in place so that we can accept that risk and move on when we need to. And when we're generating stories under attack, because we aren't going to be able to comply with all of those policies and generate the air power that we need when the time comes.

Heather "Lucky" Penney: Absolutely. We need to be able to train the way that we plan to fight. And although I understand that there are certain risk aversion that commanders have and should have regarding continuous peacetime operations, just like we have large force employment exercises and other operational exercises. And an operational test, we need to allow our airmen and empower them through constructing opportunities for them to train the way we plan to fight, with a higher acceptable level of risk.

Lt Col Matthew "Doubled" Jensen: Yeah, I agree. And it's no secret that you're going to perform in combat the way you perform in training. I [00:49:00] think there's a lot of assumptions that people will athlete and execute at a higher level, but that's just not the truth. And when you start talking about risk and adding in the dynamics of what an uncrewed platform is and what risk means to that. And if there's not a pink body in the seat, it gets a little bit murky.

Heather "Lucky" Penney: Well, gentlemen, it's been fabulous to hear that we have airmen out there that are actually getting to the bottom of how we can both generate and employ CCA in new ways that will add policy options across the spectrum of conflict for our leaders in the most critical theater of the Pacific.

It's essential that not only we build and deploy mass of air vehicles that we need, but also to train and equip the airmen that will fuel, fix, and fly them in combat and squeeze every bit of air power out of them that we can.

Thank you for being here.

Lt Col Gary "Plugger" Glojek: Thanks again, Lucky and Doubled, man, I look forward to watching your team grind through the experimentation and realize that air power capacity and capability that we need to win. I look forward to working with you more in the future.

Lt Col Matthew "Doubled" Jensen: Yeah, I appreciate the discussion today and look forward to [00:50:00] having further discussions. Both Lucky and take care.

Heather "Lucky" Penney: With that, I'd like to extend a big thank you to our guests for joining in today's discussion. I'd also like to extend a big thank you to you, our listeners, for your continued support and for tuning into today's show.

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