

# Media Brief Transcript: Uncrewed Air Systems Growing our portfolio to meet demand 09.09.25

**Adam Morrison:** [00:00:00] Good morning everybody. Welcome to our BAE Systems Uncrewed Air Systems briefing this morning. I'm Adam Morrison, head of comms for our Falcon Works business. We'll start today's session shortly,

**Adam Morrison:** [00:00:20] Which we'll run until about 1030 including questions. We'll then have another short special announcement. I know it's very exciting, isn't it? So please remain in your seats after this one has finished. I'm joined today by our Falcon Works business development lead, Anthony Foxy Gregory, our CEO of Malloy Aeronautics, Neil Appleton, and our business development lead at our partner company, kinetic, Doctor John Simpson. So, without any more ado, I'd like to hand over to you, Foxy.

**Anthony Gregory:** [00:01:31] Thank you Adam. Good morning, everybody, and thank you for joining us. I hope you can hear me sounds a little bit weak here. As Adam says, Anthony Gregory, I am the business development director for Falcon works within our BAE systems Air Sector. Within FalconWorks we are the rapid innovation and new technology development arm of the Air division with a particular focus on all things uncrewed, all things autonomous. What we're doing through that focus is we're looking at, you know, what is an incredibly exciting technology sector that I'm sure you'll see is booming massively, and how we might apply that technology sector to the challenges that some of our customers face. And it's not just defence customers, it's defence, it's security. And even across into commercial sectors. I'm sure you'll recognise that all of these systems and technologies have dual use applications. Some of the common challenges we see are you know, everybody's becoming challenged in terms of the amount of combat air mass that nations can generate. About the affordability of continuing to operate multiples and multiples of platforms to deliver certain effects. And what we're trying to look at is, can we offer customers a completely different way of achieving the same outcome, the same effect, but with different technology, uncrewed and autonomous technology. How might we change that dynamic around? And when you start looking at that, we realize that you can pretty much layer up from, you know, subsurface, you'll see some of our products and things on, on the displays behind us all

the way up through battlefield tactical applications, all the way up through sort of more combat airspace all the way to the edge of space and pseudo satellite.

**Anthony Gregory:** [00:03:24] And how do you provide sort of additional resilience to low Earth orbit capability? We started to realize that there's a whole range of sort of vehicle solutions in there, which then you can put any particular payloads on Agnostically to try and drive the same effect, but at a vastly different agility and a vastly different cost point. Within Falcon Works and within BAE Systems, the way we like to do that is to partner, we partner globally. John on the stage will talk to you in a second. From kinetic. Some of the work we're doing there around crewed and uncrewed teaming. Neil from Molloy, who'll be talking in a second, is part of an inorganic growth strategy that we've been pursuing. So, through partnering inorganic and organic growth, we're trying to get at this problem and offer our customers completely different ways of achieving the same things at a very different agility point and a very different cost point. What are some of the things we are doing? Really Neil will talk more in a second, but you'll see on the screen everything in the defence world flows from having information, having decision advantage, knowing what is out there and then making informed decisions and choices as to what you do to counter that, mitigate that, or defeat particular threats.

**Anthony Gregory:** [00:04:43] In that space we are looking very much at new technology in pseudo satellite technology. So, we have a solar powered aircraft called Phasa 35 that flies in the stratosphere recharges itself through the day, persists over the night, and in theory, can do that for multiple days, multiple weeks, multiple months at a time. That's an exciting technology that we're just bringing to life and starting to offer to customers. And really, as I say, offers a differentiation to low Earth orbit satellite capability, where I can start to provide comms networks, I can provide resilience I can provide intelligence, surveillance, and reconnaissance really starting to inform over wide areas on a persistent geographic basis information for our customers to use. Once we've got information, what do you do about it? Well, some of those things might lead to more kinetic courses of action. How do I defeat a particular threat? And Neil will talk about some experimentation we've been doing again at pace. The particular project we'll talk about started in January. We demonstrated it in May. So really countering some of this challenge that we see that big OEMs can't operate at pace, can't deliver

effects in the same way as SMEs. And I think we're proving that by working with SMEs and partnering and working in the right way

**Anthony Gregory:** [00:06:06] you absolutely can and you get the benefits of a bigger OEM backing into a small SME innovation cycle and that's quite a powerful thing. Then the last sort of illustration we'll go through is some of the things we've been doing in support of the recent Royal Navy deployments around the globe and also some of the work we do with partners in the US around supporting the US Army with tactical logistics in contested environments. So how do you replace the role of what might have been done with traditional helicopters that are not as survivable, perhaps certainly more costly, and therefore, can I afford to sustain losses, perhaps when these helicopters are doing logistics in areas where it's particularly congested. Our portfolio there starts to offer a different way of doing that last mile logistics, whether that's from troops to the front line, whether it's from a ship to a ship, whether it's from an oil rig to an oil rig, whether it's from the shore to oil rigs or ships. Another area of technology that we're applying to change the dynamic for our customers. So, I'll, I'll hand over to Neil to talk more about some of the rotary wing, all electric portfolio that resides within Malloy, how we work with some of our partners in the US, some of the things we've done against some of those challenges I've outlined to you, Neil.

**Neil Appleton:** [00:07:29] Thanks and good morning. Malloy was an overnight success which was about 10 to 12 years in the making. So, 2012 2013 the company was formed and then for a decade we conducted that rapid R&D that Mr. Gregory just described here. So, whether it's constantly evolving the platform, integration of new components, encrypted comms, whatever the upgrades customers were looking for, the Malloy team spent a decade looking at all of that and maturing a product set. So, the product set we have today is the T150. So, the vehicle taxonomy is simply the weight in pounds. So, a 150 can lift 150lbs, which is about 68kg. We also have a T400 400lbs and about 200kg, give or take. Give me some latitude on the maths, but essentially, it's all around that heavy lift mobility and since the integration with BAE Systems. So, I first started working with Malloy in 2021, prior to the acquisition from the BAE Systems side. The whole premise was to partner with the company, understand how you can bring the benefits of a big prime like BAE Systems with the agility and pace of an SME like Malloy, and bring those two things together. So, some of the highlights on that journey we've talked and

are doing an awful lot of R&D for a T650, so that'll be a class leading 300-kilogram payload platform. That kind of payload is in our ambition.

**Neil Appleton:** [00:08:58] We did Rytmus in 2023, so we took a logistics drone and made it able to carry anti-submarine torpedoes. So that was a great example of the benefit of the Prime by BAE Systems, weapons integration, complex payload, complex mission systems with Malloy complex platform and heavy lift speciality, then eventually we moved into an acquisition which completed in January 2024, which is when I formally joined Malloy. So since then we've had a number of great successes. There was the press release just last week from the UK Royal Navy. They've got a number of platforms on board the carrier strike group and have recently released footage, as you can see, of the drones actually being used in Operation at sea for ship to ship logistics. So very quickly, typically that would be a would be a helicopter. You've got complex crews on board. You're using a very expensive asset. It's £20,000 to £30,000 to fly those things for about an hour, our platforms are way, way cheaper than that. So, the amount of saving in just helicopter wear and tear itself pays for the platform. Then you talk about crew fatigue and the benefits of not having pilots doing relatively dull, dirty and dangerous missions. That is where our platforms can really compensate and help the Navy achieve that force mass at a more affordable level that Foxy was talking around. So that's the carrier strike, I was privileged to be out there last week for the engagement event in Japan.

**Neil Appleton:** [00:10:26] That was a huge opportunity, and it was great to stand with the Navy and talk about the difference our drones are making to international customers so just a real, real privilege. Then if we move on again, if I said logistics is left of arc in terms of complexity, at the very right of arc is complex weapons and precision guided munitions. So, this was a recent firing we did over in the US with our partner, Service Engineering and BAE Systems Inc, BAE systems Falcon Works and Malloy as a combined team. So again, you get the benefit of a an SME in the UK, a medium sized enterprise in the US, and then two big primes UK plc and BAE Systems Inc and you take a TRL nine precision guided munition, TRL nine rotary based drone and in four months, we stuck the two things together, safely, cleared the release, and then demonstrated 100% strike rate for our targets to air to surface and one air to air on a counter drone. So just a huge, huge leap forward in capability again and demonstrating the multi-role nature of these platforms. So, left of arc you've got logs right of arc you've

got complex weapons and, in your imagination, can fill in everything in between that. So, look forward to more and more use cases coming out as we just continue to roll that development forward. Thank you.

**Anthony Gregory:** [00:11:46] Thanks, Neil. Neil raises an important point around all of these technologies today, and we apply them to customer challenges. We're very much in the space now of being sort of multi-role across a number of different vehicle types. What could you do? What type of sensor do you want to put on? What type of effect do you want to achieve? When we're very much in that mix. We talk to you a couple of years ago with our colleagues from Kinetic around some work we intended to do and were starting to do on crewed uncrewed teaming. So how could we take some of these assets and start to coordinate them together? How could they understand each other together in terms of providing an effect? I'm going to pass over to John to give you an update on what we've done in that space.

**John Simpson:** [00:12:28] Thank you. Foxy. Yeah. Good morning everyone. John Simpson from kinetic. Firstly, a big thanks to our friends and colleagues at BAE systems for the opportunity to be part of the briefing panel this morning. Yeah. As Foxy said, we have been teaming on the development of autonomous systems, and particularly how to pull together complex swarms of dissimilar systems. I'll go into a little bit more detail on that shortly. But first, a few words about kinetic. I think we're probably fairly well known in the defence world. We are a technology enabled defence services company. We do lots and lots of things I will not list them all now, but one common theme for us is helping the customer bring into service, into operational service new generations of complex systems. Very much a specialization and focus for us. As part of that, we are very focused on the new generation of autonomous systems, robots, which can basically make their own mind up about how they're going to deliver a mission, and in doing so, take the workload off the crude operator who otherwise would be having to drive them through a joystick and radio control apparatus. So, we have been undertaking a number of activities over the last few years, really focused around the understanding of how autonomous systems will collaborate with the current air and crewed component, adding to capability, adding to lethality by not adding to workload, and also not adding to the budget significantly. Because if we have significant adoption hurdles, it's another barrier to bring into service the new generations of systems. So, a few years ago, we started looking at the use of link 16, NATO standard command and

control data link to see whether we could use link 16 itself as a medium to bridge the gap between the crewed component and the new generations of drones.

**John Simpson:** [00:14:21] Most NATO aircraft have link 16, have a link 16 connection, so that's already in place. But link 16 itself is a very high-level prescriptive language. You can say a few things. You can say go here, go there, bring me back reconnaissance information or, you know, electronic warfare information on a target, but there isn't any detail below that. So, one of the things we've all been focused on now is how we couple autonomy to link 16 and let the drone make up its own mind about how to interpret that mission assignment, that tasking it gets from the crude platform. So, we flew a couple of years ago now a demonstration of the Hebrides, where we use the link 16 language. We used our ATD, we do a number of activities again with BAE Systems on that aircraft. It's a large aircraft. We can get experimental equipment onto it very easily. New radio systems and radars and so forth. Within it, we had a number of work operator workstations, one of them was kitted out as a faithful replica of a typhoon tactical display and then we used that tactical display driven by a military operator to work with one of our Banshee drones, and you can see one of those on the kinetic stand next door acting as the autonomous strike platform.

**John Simpson:** [00:15:50] That was a very, very successful test. In our collaboration with BAE Systems we've really been adding to that to see how far we can push it. So, we have and this is in synthetic environment at the moment in the digital space over the last year, as Foxy was saying, we've been working with these architectures to understand how we can have teams of dissimilar drones. Drones may potentially by different vendors doing different jobs but collaborating with themselves. So, we call the crewed aircraft collaborating with the drone crewed uncrewed teaming and we've been extending that to have the drones themselves then tasking themselves in what, we can't think of a better phrase yet, but uncrewed teaming probably need a better acronym and that's what we've recently been demonstrating with our colleagues at BAE Systems. So, we've got routes to operational service by coupling autonomy to standard NATO data links like link 16. We've got an understanding of how those elements will now work together, and how those drones could cooperate themselves to deliver missions, but without needing detailed inputs from the from the crude operators who are already overstretched. So, the next stage for us, after our very successful synthetic environment trials between kinetic and BAE Systems this year, is to move to live trials next year and

we're in some detailed discussions at the moment with MoD customers, defence science and technology labs, who've also sponsored some of the work to date. Hopefully you know, over the next period, we can bring you some interesting announcements about how those live trials are progressing. Thanks very much.

**Anthony Gregory:** [00:17:27] Thanks, John. I think to summarise and we'll open the floor for questions. I think it's an incredibly exciting technology sector. We as BAE Systems, working with our partners, recognise that our global customers are struggling with some challenges in terms of numbers of platforms, in terms of the costs against asymmetric threats. And we think by applying this technology in the right ways, with the right partners, we can achieve the same outcomes or better outcomes at vastly different cost points and agility points. That's not to say we envisage these things replacing traditional systems but very much supplementing to enhance the overall effect and enhance overall options. I will make the final point to say, you know, we here we talk about defence all the time. A lot of this technology absolutely has dual use application. So, applying some of the core technology enablers to challenges in the commercial sector is equally applicable and what we intend to do.

**Adam Morrison:** [00:18:34] Thank you. Foxy. Neil. John thank you very much. So, we've got some time left before we move on to our special announcement. I know I can feel the excitement in the air. But I'd like to throw the floor open to questions. So, we've got around five, ten minutes for questions. If you can just put your hand up, ask your question, say who you are, where you're from, and if there is a particular person you'd like to address it to, please ask.

**Speaker5:** [00:19:02] Hi. Chris. Pocock, aerospace and defence I. Phaser 35 seems to be taking a very long time for you to get this to market. You said you're just starting offering it to customers now, but it was partially developed before you bought that company. So, could you explain why it's taking so long when you consider that Zephyr is way ahead of you in terms of operational experience and customers. And perhaps you'll tell us what's the difference between Zephyr and Phaser 35?

**Anthony Gregory:** [00:19:39] Yeah, of course. So, I'll disagree with you right up front. So, I don't think Zephyr and Alto are ahead. There are a few companies looking at the high altitude, persistent sort of surveillance space, the stratosphere space. It's a

challenging space, right? So that's why it's taking everybody long and a long time to, to get there. The underpinning technology, we have basically over the past ten years, we've been on a journey to, to make sure that everything underpinning is as it needs to be and then we've been starting to exploit the latest generation of solar cell technology, latest generation of battery technology, which of course, in itself is evolving very rapidly. I think we're now at a point where we have high confidence that we are. I describe it as we're at that TRL eight gusting nine stage now where we know the technology works. We've proved the technology. We've proved the ability to launch and recover, which is one of the most difficult things with those kinds of vehicles and perhaps where some of their other colleagues have been struggling. We've proved all of that and we've got all of that ready to go. So, we are on the verge of starting to conduct our first operational missions, you know, for real customers with real payloads we will prove, you know, overnight beyond line of sight, off range sort of capability. I think with that, we have turned the corner.

[00:21:14] In terms of the differences between some of the other products and Phasa 35. I think the unique thing about Phasa 35 and what makes it easier in a customer facing world is the design has you've got you've got a vehicle side of the design. You know, the vehicle looks after itself. How I get from A to B, how I operate in a particular area and how I come back. But then the payload part is completely separate and it's private. So, when customers want to bring a particular, particularly government might want to bring something that's sensitive. We don't need to know what the payload is. We're just providing it with a ride and we're just providing it with power. You know the payloads, the payload, it can communicate direct to the customers if they need to. We don't have to be in that mix with some of the other systems they don't carry as much and it's not in that same configuration. So, you have to start disassembling payloads to balance it around an airframe to perform the mission. Now why that works in terms of technology, that's okay. But in terms of a customer proposition, it starts to get a bit tricky because you're basically asking somebody to disassemble what they want to take to that environment and then repackage it in a different way. So, I don't think we're behind our competitors. It has been a long journey to prove the technology. We have proved it and we are confident we're there and therefore we're just at the phase of coming to market now.

**Adam Morrison:** [00:22:43] Thanks. Thanks, Foxy. Right. Okay. Tim.

**Tim Robinson:** [00:22:49] Tim Robinson, aerospace. Magazine. Question for Foxy. When will BAE Systems be flying its own ACP? In terms of your CCAs you've got there? Can you give us any insight into flight test campaign and timelines? And also, is there any given what Dassault revealed at the Paris Air Show they had neuron 2.0 there. Any thoughts on dust off Taranis and getting it back? Thanks.

**Adam Morrison:** [00:23:16]

**Anthony Gregory:** [00:23:18] All the simple questions. I'm not going to give anything away in terms of timelines or what we're doing other than to say, as we have been talking to you guys and talking with partners that we are busy studying those concepts and studying them in a way that we think is in a time relevant manner to the market demands. You know, as we progress into next year, perhaps we'll be sat here talking to you again about other announcements, but we're not going to say anything or be drawn on, on timelines right now. I think it's a very interesting space. You know, we're watching customers, air forces globally, absolutely recognizing the need for those kinds of systems, both in terms of building complimentary mass in terms of numbers, complimentary mass of weapons to a particular, you know, scenario or a threat case. But how do you do it? We've embarked on a language of, well, these things clearly need to be a treatable or disposable. It's like, well, okay, what does that mean? You know what? What is that price point? And more importantly, if you want to do something real and effective with those kinds of vehicles, how do I achieve that price point to make sure that the whole concept of having supplementary mass and numbers that I can afford to lose, or I can afford to dispose of, hitting that price envelope with a system that is capable to do the military task is a real challenge.

**Anthony Gregory:** [00:24:44] And that's what we've been studying. And I think we're seeing people globally trying to, you know, work out that conundrum. Clearly lots of people focused on it, clearly lots of new hyperscalers and new entrants which is which is great because it really drives the technology debate and we as BAE Systems are up for that debate. And in that with them so I won't be drawn on any announcements. We are busy working on concepts such as that. And I think we, we recognize the challenge that most customers are facing and are working out how we might, again, help them

address some of those challenges with some of the things we might be able to offer either ourselves or with partners.

**Adam Morrison:** [00:25:27] Okay. Thank you. I think we've got time for two more quick questions or maybe quick answers, I don't know. So. Yes, please.

**Rudy Ruitenber:** [00:25:36] Hi. Good morning, Rudy Ruitenber for defence news. I'll keep it brief. Question for Neil. We saw some navel to navel operational use cases. So, what is the level of autonomy that is included in the drones currently? I was also just very technically 150lbs. Does that refer to the entire system, or is that the payload? And then I was wondering how it compares to some of the heavy drone, heavy bomber drones that we're seeing in Ukraine in terms of payload and capability. Thank you.

**Neil Appleton:** [00:26:10] Okay. I'll take the payload one that's quite straightforward. It's 150lbs of payload, which is class leading. So, the max take-off weight of the vehicle off the top of my head, it's something 300lbs ish, give or take, but the payload is 150lbs, mostly batteries, unsurprisingly. Your first question on an autonomy. The Navy are flying both. So, we actually train the Royal Navy pilots at our facility and train them in both autonomous flight and manual flight in the event of emergencies, or if they would prefer to do that for deck landings, particularly if you've got an aircraft carrier full of expensive F-35s or other assets. So, they can do both. It's a simple message there. And in terms of how does it compare? I mean, you guys can see the payload and the range characteristics on our website. And you can, frankly, you know, do your own homework on all the different types of drone globally, not just in Ukraine, but globally. There are as far as where we see at the moment, we are class leading for all electric. There's different companies coming forward with fuel, drones and different ranges and payloads.

**Neil Appleton:** [00:27:15] And I think what that brings is a level of Foxy spoke earlier about what's the customer impact of all these just because you can. Should you do these technologies? And so, one of the benefits of sticking all electric is the drone's easy to move, easy to operate and maintain service. So T150 two people back of an F-150 or back of a Toyota Hilux. Super easy vehicle movement, no big logistics chain, very easy to operate for our customers. You start talking about moving into a fuel-based system. You've got complex fuels, you've got engines, you've got hydraulics, lots more

moving parts, more things to break, more things to keep clean in the field in the middle of a conflict. So, there's I guess my answer is there's definitely room in the toolbox for all of these pieces of equipment. Customers are coming forward with both requirements for and competitors are coming forward with solutions for. But I think we'll find eventually customer use, utility and usability will become a differentiator. And we're focusing very heavily on that.

**Adam Morrison:** [00:28:15] Great. Okay. Well thank you very much. So, unless there are any more questions, we can we can conclude the first part of today's briefing. And thank you very much to our panellists. Thank you, thank.