



# Defence Committee

## Oral evidence: Ajax: recent developments, HC 550

Tuesday 20 July 2021

Ordered by the House of Commons to be published on 20 July 2021.

[Watch the meeting](#)

Members present: Mr Tobias Ellwood (Chair); Stuart Anderson; Sarah Atherton; Martin Docherty-Hughes; Richard Drax; Mr Mark Francois; Mr Kevan Jones; Mrs Emma Lewell-Buck; John Spellar; Derek Twigg.

Questions 1-162

### Witnesses

**I:** Carew Wilks, Vice President and General Manager, General Dynamics Land Systems; Scott Milne, Executive Programme Director, General Dynamics Land Systems.

**II:** Jeremy Quin MP, Minister for Defence Procurement; David Williams CB, Permanent Secretary, Ministry of Defence; Lieutenant General Ralph Wooddisse CBE MC, Commander Field Army; Major General Timothy Hodgetts CBE, Surgeon General, MoD.

Written evidence from witnesses:

– [General Dynamics \(AJA0031\)](#)

[Ministry of Defence correspondence](#)

## Examination of witnesses

Witnesses: Carew Wilks and Scott Milne.

**Chair:** Welcome to this Defence Select Committee hearing on “Ajax: recent developments”. This comes on the back of our previous report entitled “Obsolescent and outgunned: the British Army’s armoured vehicle capability”. It is designed to explore the progress that has been made with the Ajax programme. Our time today is divided into two parts; we have two separate panels. Our first panel will include Carew Wilks, vice president and general manager of General Dynamics Land Systems, and Scott Milne, executive programme director of General Dynamics Land Systems. Part one will involve you two and in about an hour or so we will then turn to the Procurement Minister, Jeremy Quin, who will be joined by David Williams, the permanent secretary, Lieutenant General Ralph Wooddisse, who is Commander Field Army, and Major General Timothy Hodgetts, who is the Surgeon General. We are very grateful for their time as well.

To set the scene of our focus today, AJAX is a new armoured recce vehicle, designed to replace Scimitar, which was first used by the British Army in the 1970s. Discussions to replace Scimitar began in 1992. After exploring options over 18 years, the MoD finally approved a business case for a new vehicle in 2010. General Dynamics received the contract to produce 589 vehicles, based on an existing chassis already in use with the Austrian and Spanish Armies. Part of the deal involved investment in a manufacturing site in Merthyr Tydfil in Wales, and the first vehicles were to be delivered in 2017.

But today the MoD has already spent over £3 billion and has received over a dozen vehicles of the 589. The cost of each is likely to exceed £7 million, and there have been much-publicised reports of issues with the turret and firing mechanism, noise and vibration concerns, and speed performance, leading to the suspension of approval tests.

This is a complex vehicle compared with its predecessor but, consequently, its weight has ballooned from 8 tonnes to 43 tonnes, meaning that it is too heavy for the A400 transport aircraft, and only with partial dismantling can it fit into the C-17. To compound matters, as a result of the MoD’s Command Paper, the Warrior armoured fighting vehicle is to be withdrawn and replaced by Boxer, the wheel combat vehicle, which has no turret, meaning that Boxer can deliver dismounted troops to the frontline but cannot adequately protect them, as Warrior could do. This is pertinent today to AJAX, which does have a turret but cannot carry infantry.

All in all, strategically and operationally, it is a very unsatisfactory and confusing picture, which I hope our Committee can unravel today. To begin proceedings, I will turn to Kevan Jones to kick us off.

Q1 **Mr Jones:** On 8 June this year, the Minister for Defence Procurement said that negotiations on the planned contract had to be recast for the



## HOUSE OF COMMONS

contract held between December 2018 and May 2019. What is a recast? What is the difference between that and a renegotiation?

**Carew Wilks:** Good afternoon. In response to that, the recast agreement was reached between ourselves and the Ministry of Defence in 2019 and was the first change to the contract since it was awarded for the demonstration contract in 2010, the production contract in 2014, and the support contract in 2015. The recast contract took account of issues through the programme in the period between the original contract award and 2019, and it also introduced some new requirements. It also set out a delivery plan involving capability drops—in other words, a sequence of capability drops to be delivered through the programme, with the continuation of the demonstration phase concurrent with the production and delivery of vehicles.

Q2 **Mr Jones:** Who asked for the recast or renegotiation?

**Carew Wilks:** It was a joint decision to clarify some of the issues that occurred in the early stages of the programme, taking account of some of the technical challenges that had taken place and some of the configuration changes that had taken place on the cannon system.

Q3 **Mr Jones:** So this is the first renegotiation of the contract, is it?

**Carew Wilks:** The recast was the first renegotiation of the contract since it was awarded in '14-'15.

Q4 **Mr Jones:** From my parliamentary questions, the MoD has spent between £4.2 billion and £4.7 billion on this vehicle so far and only got 12 vehicles. Could you explain the original contract? It has always been a bit of a mystery to me that all the risk on this contract seems to have been with the MoD. Why was it that the MoD chose to basically pay up front for this, rather than having some type of milestone payments throughout the contract?

**Carew Wilks:** The contract is for 589 vehicles at the full capability. It also includes extensive training systems and simulation systems to train Army crews, and the full logistic support, as well as the demonstration and design of the platform.

**Mr Jones:** Mr Wilks, you are talking only about the contract, which I could recite in my sleep.

**Carew Wilks:** In terms of where we are today on that contract, it is a firm price contract with a value to us of £4.62 billion, excluding VAT.

Q5 **Mr Jones:** That wasn't my question. Why was the risk all with the MoD? It seems very strange to me that money is paid up front. What risk is GD taking on this contract?

**Carew Wilks:** I own the delivery risk on the programme to deliver the programme, the vehicle and the capability to meet the requirement that has been set out to us. We have been developing, testing and trialling that throughout the development process. We have delivered milestones throughout the contract.



## HOUSE OF COMMONS

Q6 **Mr Jones:** I don't know whether you have been a civil servant in a previous life, but you are answering questions like a civil servant. Why was the contract negotiated so that the taxpayer is basically funding things up front? What was the risk to the GD? It seems to me that the taxpayer has spent an awful lot of money here—I accept that we will come on to the reasons why later. Why was it framed in such a way that you were not taking some of the risk as well?

**Carew Wilks:** General Dynamics owns the risk of delivering the capability to the full requirement and we are—

Q7 **Mr Kevan Jones:** No, no, no—hang on. I am not talking about the risk; I want to know about hard cash. What are you exposed to in hard-cash terms? It seems to me that the taxpayer is the one funding this up front without any recourse back to GD. Can you clarify who the contract is actually with at GD because it is not with the parent company, is it?

**Carew Wilks:** The contract is with General Dynamics UK, which is a UK-based company.

Q8 **Mr Kevan Jones:** So the main US company has no exposure on this, then?

**Carew Wilks:** We are part of the wider General Dynamics Corporation—

**Mr Kevan Jones:** Yes, we know that.

**Carew Wilks:** And we have been delivering the programme in accordance with the milestones that are laid out in the contract and payment is along those milestones—

Q9 **Mr Kevan Jones:** Mr Wilks, can I stop you? You can keep repeating that as much as you want. I have been a Minister, so I know how civil servants work, and I have been on this Committee for a couple of years now, but I was previously on it for nearly seven years, so I know when I am being fed gobbledegook. I am trying to get some understanding of what the risk is to GD. The taxpayer is basically carrying the main risk here. Why was the contract negotiated in such a way that the taxpayer is not just frontloading it, but continuing to fund it? In terms of penalties or hard cash, there is no risk to GD, is there?

**Carew Wilks:** I have the responsibility for delivering the full capability—

**Mr Kevan Jones:** I have heard that.

**Carew Wilks:** —within the firm price of the contract.

Q10 **Mr Kevan Jones:** I have heard all that. What is the penalty, not for GD US, because we accept that is a separate company altogether, but for this company? Let us suppose that we get through all the £5.5 billion, what happens then? Does the taxpayer keep paying it?

**Carew Wilks:** I am completely committed to delivering the full requirements of the programme within the contract values—



## HOUSE OF COMMONS

**Q11 Mr Kevan Jones:** Can I stop you? Answer the question. The question is very simple. We have established that you are a separate company from GD US. Just be clear. What is the exposure of your company, GD UK, in cash terms? If you do not meet something, is it going to cost you? What you have here—I have never been able to understand why—is basically a contract where the taxpayer is funding this up front, which is a very odd way of negotiating a contract. What is your exposure as a company?

**Carew Wilks:** I am not sure that I can answer that in any other way than to say that we deliver the milestones in the contract—

**Mr Kevan Jones:** Oh, forget it. Chair, he is not answering the question.

**Q12 Chair:** May I try Kevan Jones's important question another way? In other contracts, have you taken a financial risk whereby if you do not deliver according to the contract, you are financially affected? Here, money is stood across from the MoD, and the money keeps going, but there is no exposure from your side. Is that a standard way that you do business on these huge multibillion-pound contracts? That is not the way that business should be done if you are not feeling some of the pain if things do not go well. My opening statement was clear that there is a litany of things that have gone wrong here. On the face of it—we will explore this in more detail—the MoD is having to pay for this. You are effectively trying to repair it, but the financial responsibility is not there.

**Carew Wilks:** The responsibility for delivering the capability and meeting the requirement is very much with General Dynamics. That risk sits with us and we own that risk in terms of fulfilling the full requirements against the firm price in the contract.

**Q13 Chair:** I will just finish this off and then hand back to Kevan because I know others want to come in. What you are saying is, "We will continue working on this, and we will deliver 589 vehicles, but it may take us a hell of a long time." There is no punishment if you just say, "Hang on a minute, I was supposed to deliver the first batch in 2017, operational, but I have missed that," and then there is no penalty for that. You are committed to delivering the 589 vehicles, but it could take another half a decade. Is that where we are, roughly?

**Carew Wilks:** The schedule we have commits us to delivering the vehicles, in line with the contract, in 2025. We will finish and they will be completed to the full requirement within the price. The risk of meeting that requirement sits squarely with General Dynamics.

**Chair:** Kevan, we can go back to this. I think we are not going to get more out of this, but you finish your question.

**Q14 Mr Jones:** It must be a great situation to find yourself in, where you have an open cheque book for the taxpayer's money. We are going to see the Minister later on today, but the person who is throwing money at this is the taxpayer, not GD. In terms of the so-called renegotiation, recast, whatever you want to call it, have there been penalty clauses put in there that mean that General Dynamics has some financial incentive to sort this



## HOUSE OF COMMONS

out or be penalised financially if it does not deliver?

**Carew Wilks:** Our delivery is required in order to meet the payment structure and the milestones within the contract are very clear in terms of the outputs, the scope, the deliverables and the sequencing of that. We are—and have been—incentivised to deliver that.

Q15 **Mr Jones:** Wait a minute, the entire contract was £5.5 billion. By my reckoning, the taxpayer has spent—well, at least the figure I have is between £4.2 billion and £4.7 billion. So it does not leave a great deal, does it?

**Carew Wilks:** We have built 116 vehicles so far and delivered to the Army 25 of those vehicles, which is the requirement for IOC. We have delivered training systems that are now in use at Bovington and Upavon and have further training systems being installed at the Army's training centre in Tidworth. We have the logistic support in place to support IOC. We have built 270 of the hulls, which means nearly 50% of the hulls have already been made, and 60 turrets.

Q16 **Mr Jones:** That does not reassure me as a taxpayer. Let us do an analogy. If I were to buy a new car tomorrow and the person selling it to me said "Well, actually, I have all the logistics for servicing your car for the next 10 years in place and I can say that you are going to get great customer service on that side in future, but, by the way, your car is not ready yet and it will not be ready for another 10 years", that is not reassuring for the taxpayer or the Army, which needs the vehicle.

**Carew Wilks:** I would add that the development and design of the vehicle has been carried out over the past 10 years and we have the evidenced position of compliance to the contractual requirements from completing more than 60,000 km of trials. We fired more than 4,000 rounds of the 40 mm cannon, demonstrated its full capability and have completed 70 battlefield missions to demonstrate the full design and development of this very sophisticated platform, which delivers a reconnaissance capability for the British Army that is second to none, fully digitised and will enable the Army to have information superiority.

Q17 **Mr Jones:** Do you actually believe all of this?

**Carew Wilks:** I not only believe it, but I know it from my own personal experience as a soldier in the past and from my knowledge of the evidence and data from the platform that we have at the moment.

Q18 **Chair:** We can unpick the details of that, because I know we want to explore that. Before Mark comes in, just on the recast, when you had one of these recasts, was the spec changed of what you expected—what the MoD asked for from you—in this vehicle itself? Is that what we saw happening here?

**Carew Wilks:** There were some changes to the requirements within recast, one of which was to add the new communication system known as BCIP 5.6. There was some clarification of the latest build standard of the cannon system. There was also an agreement to deliver the capability



## HOUSE OF COMMONS

through a series of capability drops incrementally through the life of the programme.

Q19 **Chair:** A capability drop is what? Just a standard that you have to meet?

**Carew Wilks:** Batches, in another word.

**Chair:** Okay, we will explore that a bit later.

Q20 **Mr Francois:** On the numbers, in the recent NAO report, "Improving the performance of major equipment contracts", figure 10, page 61, says that the spend, as of March 2021, so far, was £3.755 billion. A recent PQ confirms that, of that, General Dynamics was paid slightly more than £3.1 billion. Why has the taxpayer given you £3.1 billion up front for a vehicle that doesn't work? Why on earth did anyone ever sign a contract like that? What sane person signed that contract?

**Carew Wilks:** We have delivered already to the Army the 25 vehicles that are required to meet IOC—

Q21 **Mr Francois:** But they don't work!

**Carew Wilks:** And the training systems. The vehicles do work, and we've got evidence to that. We are very concerned by the recent issues around noise and vibration, and we are working very closely with the Army and the MoD to identify the causes of those concerns and rectify those quickly.

**Mr Francois:** Well, we'll get into the detail later. But if there were really no problem, as you're trying to bluff us, you wouldn't be here, would you? We would not be having this meeting. So please don't come in here and tell us it is all a figment of our imagination, because the rest of the afternoon might not be profitable for you. All right?

Q22 **Chair:** Can we just confirm the position from Mark's perspective? We have read in the media that the trials have had to be paused, so if things are going so well, why has there been a pause in the trials?

**Carew Wilks:** The trials have been paused as a result of concerns raised by soldiers who started operating the platforms as part of the reliability trials last year—in response to noise and vibration. That has paused some of the trials whilst we investigate and identify the causes of those concerns and incidents and identify measures to rectify them.

Q23 **Chair:** So these are 25 vehicles that you have delivered, that are now being used by the British Army and that have got vibration and noise issues. Is that where we are?

**Carew Wilks:** The reports from soldiers using the vehicles in trials are of injuries received as a result of noise and vibration, and we are working now closely with the Army to identify the causes.

Q24 **Chair:** But this is the 25 vehicles that you have delivered? You have sort of glossed over where they are. You said, "We've delivered it. We have done our bit." Actually, there are problems with those 25 vehicles that you are going to have to go and rectify. Is that correct? Just a yes or no,



## HOUSE OF COMMONS

because we really have a lot to get through.

**Carew Wilks:** Yes, we are carrying out that investigation and we will rectify all vehicles—

Q25 **Chair:** And can you confirm that not one of these 25 has got a turret. Is that correct?

**Carew Wilks:** No, that's not correct. Twelve of those delivered vehicles are equipped with a turret and went through acceptance testing, which included live firing.

**Chair:** We'll come to the issue of the live firing in a second. Stuart Anderson, please.

Q26 **Stuart Anderson:** Before I go on to my question, I just want to get something in the simplest terms, to follow on from my colleagues. You mentioned, with regard to the recast, drops zero to 4. We have got those in the contract. You have been paid an amount of money so far. If you deliver drop 4 in 2040, do you still get paid, or is there something in the contract that says that if you don't deliver it by 2025, you're not getting paid?

**Carew Wilks:** There are incentives and other measures in the contract, to ensure that we maintain schedule.

Q27 **Stuart Anderson:** So if you deliver it 10 years late, you're not getting paid.

**Carew Wilks:** If we deliver late, we will be subject to some of the contractual incentives and penalties.

Q28 **Stuart Anderson:** You mentioned the initial operating capability. And this might be one for Mr Milne to look over. In your submission to us, you have explained that the 25 vehicles meet the IOC. I think I have just heard something there that might counter that, and I will come on to that in a minute. You have already delivered. They have been accepted—as you said—including 12 AJAX variants, with the turret, that have been successfully fired by the British Army as part of the acceptance process. Is it solely the MoD that has decided to delay the IOC?

**Carew Wilks:** The decision for IOC very much sits with the MoD and relies on a number of factors to reach the point where they are comfortable with bringing, introducing, the vehicle into service. In terms of the delay to that, it's primarily until we can resolve the noise and vibration issues that have been experienced on the platform.

Q29 **Stuart Anderson:** So would it be fair to say this? They were accepted. You didn't know about these issues—well, my colleagues will explore that later. They were accepted—all fine. The Army then tested them—in addition to yourself—and they have identified more issues, so they have had to delay the IOC. Is that a fair one? Mr Milne, I would like to hear from you on this as well.





## HOUSE OF COMMONS

**Scott Milne:** Thank you. I can answer the question. The 25 vehicles represent the equipment line in the IOC declaration. As you can understand, the Army will declare IOC once the training system, the support framework, is in place, and the 25 vehicles have been delivered and have gone through the general acceptance process, which happens after production. They have subsequently been delivered to the Field Army. The vibration and noise concerns have been raised from the reliability growth testing, which involves a separate set of vehicles, however also at a production standard similar to those delivered to the Field Army. We are now working very closely with the MoD and the Army to understand the pinpoint, the specific issues, related to noise and vibration and how they relate to the concerns being raised by the end user. I must say that the soldier is very important to us, and the safety of the soldier is a top priority for us, so we are taking this investigation very seriously.

Q30 **Stuart Anderson:** Obviously it is right to do so. Before I move on, I want to get in my head the sequence: they were accepted, they worked, now they do not work. Is that a very simple process outline of where we are today?

**Carew Wilks:** Some new, unexpected issues were discovered during trials that were taking place in parallel with the vehicles being delivered.

Q31 **Stuart Anderson:** And “issue” could be classed as a fault?

**Carew Wilks:** Potentially a fault, yes.

Q32 **Stuart Anderson:** Because you take the soldiers’ safety as paramount, you would not use these with soldiers in an operation—

**Carew Wilks:** That’s right. We have mobilised resources from across General Dynamics and academia to support our investigation, working very closely with the Army and MoD to understand what those conditions are that have led to those reports and injuries.

Q33 **Mr Francois:** You said that in the course of these trials some issues were identified. Can you put a date on that?

**Chair:** Quickly, please, because I want to turn to the turret.

**Carew Wilks:** I can answer Mr Francois’s question. Last summer, we entered a next phase of our reliability testing, which involved Army crews taking over the vehicles and operating them fully. This was a transition from when General Dynamics crews had taken the reliability testing up to that point. It was subsequent to that testing that reports were received from the Army that they had concerns over and injuries related to noise and hearing.

**Mr Francois:** So last summer, a year ago.

**Chair:** We are way behind time, so Kevan, quickly.

Q34 **Mr Jones:** Mr Wilkes, that is not true, is it? You knew about them in 2017.



## HOUSE OF COMMONS

**Carew Wilks:** If we are talking about noise and vibration on the platform, this has been a feature of the design since 2010, when we started work on the programme.

**Mr Jones:** Yes.

**Carew Wilks:** I will just ask Scott to explain that.

Q35 **Chair:** To confirm, you had noise and vibration issues back in 2010?

**Carew Wilks:** An armoured vehicle such as this requires a balanced design to meet all the requirements. With the engine configuration and other characteristics, there is noise and vibration on the platform.

Q36 **Chair:** But this was a chassis that already existed; you weren't building from scratch here.

**Scott Milne:** Let me clarify. From the inception of the contract, the control of noise and vibration is a key feature of the design. Obviously, we are aware of noise and vibration because we monitor it and we put design features in from the very start of the design to make sure the noise and vibration generated to the platform does not exceed legislation limits and action values. From the very start of the programme, we took an ASCOD platform, which was the point of departure, and characterised the noise and vibration values that it would generate. Those were within legislative limits as seen in an operational vehicle. Throughout the development phase of the programme, through the seven prototypes and for each production variant, we have tested the noise and vibration levels of the platform. Those levels are comparable to other armoured fighting vehicles within the GD family and in service today.

Q37 **Mr Jones:** Can I just come back, Chair? I am sorry, but multiple people have told me—I will just look at my notes. September 2017, at DSEI, it was common knowledge that you had problems with this. People have contacted me, and they are not making this up. To give you a flavour, they include a warrant officer, an officer who is part of the programme team, an industrial subcontractor and somebody who has actually worked on your programme told me that back in 2017. If they were raising it then with parliamentarians as an issue, why is it that when I put a parliamentary question down to the Minister—and I do not doubt the Minister—he was not made aware of the issue until November 2020. You have just tried to tell us that this real problem of vibration was only an issue in 2020. That is not true, is it?

**Carew Wilks:** We have carried out extensive trials and testing throughout the life of the programme, since 2010. Some of that testing has identified areas of vibration and noise, which we have addressed through the design.

Q38 **Mr Jones:** I know you are trying to dance around the head of a pin here, but why don't you just be honest? The impression that has been given, even to Ministers—I do not doubt that the buck stops with the Minister. In response to a parliamentary question, he said the first time that he knew about it was in November 2020. Possibly that is true from his point of view, but it was not from your point of view, because you certainly



## HOUSE OF COMMONS

knew about it way back in 2017. I had people contacting me—I know people have contacted Mr Francois as well—saying exactly the same thing. These are not people who have just walked in off the street or who want to do you down; these are people who have actually been working on the contract. You have known about this, so the idea that there was some type of revelation that you suddenly discovered in 2020 is just not true. It has been known for a while, so why hasn't this been flagged up to Ministers or the MoD?

**Carew Wilks:** Scott can answer that one.

**Scott Milne:** As I have stated, we have been testing the platform throughout its development cycle, so we have data and evidence positioned against the legislative requirements. What has come to light are the user concerns when the users have first got in the platform, and we need to take those very seriously. I do not know the specifics of the issues that have been brought to your attention, and I am happy to investigate those.

**Mr Jones:** One of them is an officer who was part of the programme team, and he told me about that in 2017.

Q39 **Chair:** Are you able to share that data? It will help us get to the bottom of this. Are you able to share any of this data with the Committee?

**Carew Wilks:** We will certainly be able to share some of that information.

Q40 **Chair:** Would you please confirm whether the vibration issues are generated from the engine, or is it the ISTAR capability inside the AJAX itself?

**Carew Wilks:** There are a number of vibration sources on the platform. As we have just been discussing, these have been part of our design process throughout the design of the platform, subject to numerous trials and improvements. Perhaps I will ask Scott to explain where those improvements have been carried out to bring the vibration and noise—

**Chair:** I just want to bring in Sarah, who has been waiting very patiently.

Q41 **Sarah Atherton:** We have covered a lot of my questions anyway. Mr Wilks, you mentioned at the very beginning, when talking about the reliability trials, the injury to soldiers. What do you mean by injury to soldiers?

**Carew Wilks:** The reliability trials were approved by the Army last summer, and we received reports later in the year that soldiers had reported medical concerns, which we subsequently understood were injuries to their hearing.

Q42 **Sarah Atherton:** Just their hearing?

**Carew Wilks:** And also reports of vibration. We are taking these reports extremely seriously. As I said, we have mobilised experts from across General Dynamics, and we are working extremely closely with the Army and the Ministry of Defence to identify the causes of those injuries, the



factors that might have led to them, and what mitigations we can put in place. We have made some good progress on that over the last few weeks to identify potential mitigations, particularly on the vibration, but we are also investigating the noise. It would be helpful to explain how excess noise could occur, and I will ask Scott to explain that in a bit more detail for you.

**Scott Milne:** I will first answer the question around the design principles and design features that mitigate the effects of noise and vibration. I will not reiterate that we have taken noise and vibration very seriously. In the design, there are a number of features. To answer the question about the root cause of noise and vibration, let's be clear: it is a tracked armoured fighting vehicle with an 800 horsepower V8 engine. That is a highly powerful engine, to meet the enhanced mobility requirements of the Ajax platform. That will generate noise. The key is how we integrate that engine into the platform, and the transmission path of that noise to the end user, and that is what we take very seriously in the design. We should not conflate ambient noise issues with noise signature, which is another key feature of the AJAX design, to make sure that the AJAX cannot be detected from a survivability perspective. There are a number of noise treatments in the design delivered today, to ensure a highly performing and compliant acoustic signature for AJAX.

If I can explain the noise situation, as I have stated, the source of noise is primarily the engine when the vehicle is static, but when you start to move, the running gear will contribute to that overall noise envelope. Like any other armoured fighting vehicle tracked in service, the noise level generated on a platform goes over the upper action value for noise, and therefore it is mandatory to wear hearing protection in the platform to prevent the noise levels from getting to the human ear.

Another part of the system is to be able to communicate in the platform. So we have a requirement to provide hearing protection and a requirement for a communication system to allow the crew to speak to each other. That means we need to stop the ambient noise but allow the communication system noise. To be really clear on the noise concerns that we are dealing with right now, it is to do with the level of volume of the communication system noise that has presented to the human ear. It is not the platform noise that we are dealing with. We are working very closely with all stakeholders to understand the full integration of the communication system into the Ajax platform. We know that the communication system works on other platforms such as Warrior, which has a similar ambient noise profile, however at a different frequency. We know that that communications system works.

Q43 **Sarah Atherton:** Were you anticipating these problems and challenges?

**Scott Milne:** I would say that we were not. It is very late in the programme for us to find this. It is a surprise to us, and I will explain why that is. Throughout the development of the programme, we have always looked at the attenuation that was offered by the headset, and that, fully integrated to the platform, will deliver a safe level of noise at the human



ear. GD trials have used an alternative headset system, because the headset is fitted to the vehicle after the point of delivery. There are two changes. The first time the user is using the platform with the in-service headset is during the reliability trials, and at this point we are understanding the noise concerns. We must take into consideration, however, that the user will use the platform differently. As has been stated, we have undertaken 60,000 km of trials over the past 10 years on the programme, and we have not experienced similar issues. So we know that a communications system can be integrated and can work. We have the experience across the breadth and depth of General Dynamics, and the resolve and capacity, to deliver that capability.

**Q44 Sarah Atherton:** I have one last question. Millbrook are undertaking independent investigations at the moment. When do you expect them to report, and who is paying for that?

**Carew Wilks:** We and the MoD have carried out extensive trials with a number of third-party experts, and most recently, the Millbrook organisation is carrying out trials on behalf of the MoD to verify, validate, the vibration data and noise data, and to provide some additional data points. This is helping us in our investigation as to the potential causes of noise on the platform, as Mr Milne has recently set out, and those trials are ongoing, and will be progressive over the coming months. The expectation is that they will report in early September.

**Q45 Sarah Atherton:** And who is paying?

**Carew Wilks:** We are contributing to it in terms of our support and crews, and it is a contract with the MoD.

**Q46 Mr Francois:** So the MoD is paying?

**Carew Wilks:** As part of the overall programme, yes, it is the MoD.

**Q47 Mr Francois:** We have given you £3.1 billion, and we are paying for the trials to try to find the problem with your vehicle. Right?

**Carew Wilks:** As I said, we are contributing—

**Q48 Mr Francois:** No, no, you are putting in crew, but you are not paying for it, are you? Please don't do this to this Committee. You are not paying for the trials; the MoD are paying for them. Yes or no?

**Carew Wilks:** That is correct. The MoD is paying for them.

**Mr Francois:** Thank you.

**Mr Jones:** Can I say that it is worse than that, because I had a letter from the Minister this morning telling me that the MoD is also going to pick up the liabilities for any potential insurance claims from individuals who are involved in these trials? The taxpayer is paying yet again, aren't they?

**Q49 Chair:** The concern that we have is that the MoD is forking out far more than we would anticipate. You make the Abrams tank, arguably one of the best tanks in the world. I can't imagine that the Americans have



## HOUSE OF COMMONS

signed up to a similar protocol of handover that we are hearing about today, when not only are there defined risks that the company, you guys, have to take, but there is also the shared cost if there are problems.

**Carew Wilks:** We have brought in the expertise from across General Dynamics into the programme to make sure that our design, as has been set out, is consistent—

Q50 **Chair:** Sorry—my question was to do with the Abrams tank. Is there any correlation between the way you procured the Abrams tank and what you are doing here with AJAX, because what I am seeing with AJAX seems to be very unique in its structure? You have handed over 25 vehicles to the MoD, which now have huge problems. You made it clear, or you implied earlier in the start of our conversations, that that was it—you are “job done”, tick in the box.

We are trying to understand this: how did the MoD approve 25 vehicles that now have severe problems with them, to the point where you are having to stop the trials? Was that their fault? Should they have been more thorough in checking before saying, “Yes, I’ll take the goods home”?

**Carew Wilks:** We carried out extensive testing trials and we are at the position where we did not expect these issues to be raised. We are now working very closely, and we take this extremely seriously and we—

Q51 **Chair:** But if you take it seriously and you accept that these tanks—light tanks—are not working to the standard that we expected, why should the MoD then pay to return them back to you and get them to the standard that we expect?

**Carew Wilks:** We will fix these problems—

Q52 **Chair:** But the taxpayer is paying for them—

**Carew Wilks:** We will fix these problems within the contract price; I am committing to that.

Q53 **Chair:** Okay. The concern we have is that the more this costs, the more it is getting closer to another Nimrod, whereby the taxpayer pours money into a programme which— You have made some incredible kit at General Dynamics; there is no doubt about it. But given where AJAX is going, and the length of time it is taking to procure something that has problems after problems, with no end in sight as to when we solve them, at what point do we then draw a line and say, “Enough is enough”?

**Carew Wilks:** We have identified some mitigations to the issues that have been identified on noise and vibration, and we are confident that those can be embedded. We are carrying out trials on those at the moment and those trials move on to the next phase this week, with another third party called Mara, which we are paying for, to identify mitigations and to confirm the improvements, which we will embody on to our production vehicles for delivery to the Army.

**Chair:** Okay. To keep us on the straight and narrow, can we specifically



## HOUSE OF COMMONS

now move to Mark Francois and his question, please?

Q54 **Mr Francois:** So you start developing this system in 2010. The timeline is the same as the Warrior capability, which has just been cancelled. Warrior is aluminium; your vehicle is steel. In 2017, lots of rumours start to circulate, including at defence exhibitions, that there is something seriously wrong with AJAX. You carry on doing the trials with GD personnel; funnily enough, they report no problems. Last summer, you hand the vehicles over to Army personnel to start doing trials and straight away there are problems, which GD has not admitted to for nine years.

You said there were injuries to people's hearing. Are there any other injuries caused by vibration?

**Carew Wilks:** Perhaps I can address the trials—

Q55 **Mr Francois:** No, no, no—just answer the question. Are there any other injuries that have been caused by vibration? Yes or no?

**Carew Wilks:** We have received reports from the Army of injuries reported by Army crews using the platform.

Q56 **Mr Francois:** Caused by vibration?

**Carew Wilks:** Reported against vibration, yes.

Q57 **Mr Francois:** What sort of injuries?

**Carew Wilks:** I don't have the details in front of me; I think Scott may have some understanding.

**Scott Milne:** We have received a high-level report of the number of incidents and their nature. There—

Q58 **Chair:** We are after their nature; that is what we are trying to get to here.

**Scott Milne:** Around the hands and the whole body—vibration.

Q59 **Chair:** So, white noise?

**Scott Milne:** Tingling in the hands has been a common report.

Q60 **Mr Francois:** What is sometimes called in the construction industry vibration white finger? All right. Okay.

So we have now got injuries from the noise and injuries from vibration. You have said that most of the vibration comes from the engine and the transmission, Mr Milne. Did I hear you correctly?

**Scott Milne:** Sorry—and the running gear, when moving.

Q61 **Mr Francois:** And the running gear, when moving? Okay—well, this vehicle is meant to move. Are there any noise or vibration issues resulting from the turret or the main armament?



## HOUSE OF COMMONS

**Carew Wilks:** Those do not introduce vibration in the same way. Clearly, the whole platform, taken together as a system—

Q62 **Mr Francois:** No, no, no. Sorry—excuse me. I asked you a very specific question. In the same way, are there any noise or vibration issues resulting from the turret or the main armament when it is fired? Yes or no?

**Carew Wilks:** I think I will let Scott answer that.

**Scott Milne:** The only noise source really from the turret is the main armament. The design of the turret has the CT40 cannon outside of the crew space, so there is a citadel in which the crew is shielded from the main armament. So, the noise impulse to the crew when firing closed down is negligible.

Q63 **Mr Francois:** Has there been any cracking in the hull at any stage?

**Carew Wilks:** No cracking in the hull. The hull has gone through a series of very extensive survivability tests, and now provides the best possible protection for the crews, learning from all the experience in Iraq and Afghanistan. I think we should be proud of the protection—

Q64 **Mr Francois:** So you are absolutely adamant? People have told us privately that the hull starts to crack if you fire the weapon on the move.

**Carew Wilks:** I am not aware of any such reports.

Q65 **Mr Francois:** You are not aware of them.

**Chair:** If you could look at that and get back to us, that would be great.

**Scott Milne:** We do not have such reports.

**Carew Wilks:** We do not have any reports that would suggest that. We have been responsible for the reports throughout the programme.

Q66 **Mr Francois:** What we are trying to get to is: what is causing these problems? To some extent, you have helped us—you have helped us more than the MoD has, to be fair. You mentioned BCIP 5.6, which is the latest iteration of Bowman, with which AJAX would be equipped, correct? Presumably AJAX, because it is part of the digitised battlefield—that is the whole raison d'être of the vehicle—will include Morpheus as well, yes?

**Carew Wilks:** At this moment, it is BCIP 5.6 which would be put on to the platforms, and the future path for that communications system is something for the MoD.

Q67 **Mr Francois:** Yes, but the design is earmarked for Morpheus as part of LE TacCIS. That has always been part of the solution, hasn't it?

**Carew Wilks:** The Morpheus programme is separate, and links to the communications system.

Q68 **Mr Francois:** Yes, but the reason I ask the question is that the integrated review talks about integrated armed forces and about highly





## HOUSE OF COMMONS

digitised armed forces. For the integrated review to hang together, all of these different units—of which there will be fewer—have to communicate with each other perfectly. The Army's programme for that is LE TacCIS. The main sub-part of LE TacCIS is Morpheus, which is the Bowman replacement, correct? Who is the prime contractor on Morpheus?

**Carew Wilks:** For the AJAX platform, this is the most advanced digital platform it has onboard. It has digital systems that are open and scalable, and this is the first of such platforms that will provide the integrated battle space capability for the Army of the future. The communications system is BCIP 5.6; that will be upgraded, I am sure, as Morpheus comes online.

Q69 **Mr Francois:** Right. According to the NAO report I mentioned earlier, so far they have spent £1.5 billion on LE TacCIS, and they have virtually nothing whatsoever to show for it. Is it true that the incumbent on Bowman and on Morpheus is General Dynamics, and that they are now in dispute with the Ministry of Defence over Morpheus?

**Carew Wilks:** I am speaking on behalf of General Dynamics Land Systems, and for the Ajax programme. I am not able to comment on—

Q70 **Mr Francois:** Yes, but what I have said is true, isn't it? Don't pretend you don't know it. It is true, isn't it?

**Carew Wilks:** I do not know the situation with Morpheus.

Q71 **Mr Francois:** From the people who brought you the Ajax debacle, we now have the Morpheus debacle, and you are the same parent company at the end of the day, aren't you? Not only have you given us a tank that doesn't work, now you've got a radio that won't work. You're doing really well, aren't you?

**Carew Wilks:** BCIP 5.6 is being installed on to AJAX. It will come out at the drop 3 configuration.

Q72 **Mr Francois:** Yes, but AJAX is meant to be in service for 30 years. Bowman comes out of service in a few years' time, so it is going to need a new radio, isn't it? Otherwise, there's no point in buying the bloomin' thing. That will be Morpheus, and you do Morpheus, and that is not working either, is it? That is my point.

**Carew Wilks:** I am not able to comment on the Morpheus programme. Scott?

**Scott Milne:** I can't, but I can just give you the assurance that the electronic architecture within AJAX will be fully compatible, because it meets the generic vehicle architecture open standards. Morpheus has been designed with that in mind.

**Mr Francois:** My final point is that you have brought us not just one cock-up, but two. Thank you very much.

**Chair:** Okay, we have three others who want to ask questions: Martin Docherty-Hughes, followed by Derek, please, and then Richard. Martin, over to you.



**Q73 Martin Docherty-Hughes:** Thank you, Chair. Just following on my colleague's point about vibration white finger, that is not something we should take lightly: as the son of a shipyard worker, I know the impact of that condition. Can I ask you this, gentlemen? You clearly have every confidence in this vehicle, so given your confidence in it, can you tell the Committee who else, other than the MoD, is going to buy it?

**Carew Wilks:** The capability of AJAX is a specific reconnaissance capability for manned battlefield reconnaissance. As we said, it is at the leading edge of such capability, with a digital architecture and a very extensive and advanced suite of sensors. It will provide the British Army with a core part of its modernisation, and will be transformational—

**Q74 Martin Docherty-Hughes:** Mr Wilks, other than the Ministry of Defence, who is going to buy this vehicle?

**Carew Wilks:** We have a number of potential export opportunities. Clearly, we are looking very closely at ensuring we get this into service with the British Army fully functionally. My personal focus is to—

**Q75 Martin Docherty-Hughes:** Okay. I am keen to let other Members get in. You mentioned an export strategy. Which countries are you targeting in your export strategy, other than the MoD?

**Carew Wilks:** We look, clearly, around the world. I know that there is some interest in a similar capability from the Middle East region.

**Q76 Martin Docherty-Hughes:** Finally, Chair, I noticed one of my former colleagues saying on Twitter that this could take nearly as long as the Apollo mission to the Moon and is probably more expensive. Do you think we will get that far?

**Carew Wilks:** We are very committed to delivering this capability. We have obviously had a very significant impact from covid since last March. I am very proud of the commitments of my team in south Wales in continuing production operations, and also of our supply chain across the UK in continuing to deliver the programme throughout the covid pandemic, while clearly we have applied the various safety measures. We are, as a result, somewhat behind schedule, but I am committed to recovering that schedule and delivering all the vehicles in 2025.

**Q77 Martin Docherty-Hughes:** Sorry, Chair, just one final point. Mr Wilks, can you confirm whether or not you were responsible for the acquisition of all equipment for the land environment in the MoD before you joined General Dynamics?

**Carew Wilks:** I left the Ministry of Defence and the Army in 2013, and since then I have been working in various roles in the defence industry, including as chief operating officer for a military vehicle company. I joined GD in 2018.

**Martin Docherty-Hughes:** Thank you.

**Q78 Derek Twigg:** Talking about your colleagues, in your submission you state that the Ajax programme currently supports more than 4,100 direct



## HOUSE OF COMMONS

jobs and a significant number of indirect jobs across the UK. However, when the contract was announced, you said that the programme would safeguard or create 10,600 jobs for UK workers. Could you explain to us why the figures are so different?

**Carew Wilks:** As you know, General Dynamics has invested very heavily into this programme and into south Wales. We employ around 800 directly in south Wales at Merthyr Tydfil and Oakdale. Our supply chain across the UK extends to around 230 companies around the UK, some of which work at the leading edge of technology. They employ around another 3,300 direct jobs, and if we then look at the indirect benefit and the indirect jobs associated with that whole supply chain, that would add a further 8,000 jobs. That takes the total to above where we were before.

Q79 **Mr Jones:** You just said that GD has invested heavily in south Wales. It sounds to me as though the taxpayer has, rather than GD. How much has General Dynamics actually invested, separately to the money it has already received from the MoD?

**Carew Wilks:** General Dynamics is very committed to its place in the United Kingdom. It has been in the United Kingdom for many years. We have established a footprint in south Wales with our engineering centre of excellence and our Merthyr Tydfil production facility. We have invested about £40 million in those two facilities.

Q80 **Mr Jones:** £40 million?

**Carew Wilks:** Yes.

Q81 **Mr Jones:** Is that all?

**Carew Wilks:** That was to develop the test track manufacturing facility, and the system integration laboratory and engineering facilities.

Q82 **Mr Jones:** So the rest of it has been paid for by the taxpayer, then?

**Carew Wilks:** The Ajax programme and the production of the vehicles—

Q83 **Mr Jones:** Just say yes if that's the case. It has. The taxpayer has paid for this. Although you have perhaps created 4,100 direct jobs—I can't do the maths very quickly to work out how much the taxpayer has subsidised each one of those jobs—it is quite clear that GD as a company has not actually invested a great deal of money in this, if it is only £40 million. I'm sure I could have created 4,100 jobs if I had access to over £4.7 billion of taxpayers' money.

**Carew Wilks:** In addition to the jobs and indirect jobs, the skills base across the UK in the armoured fighting vehicle capability—

**Mr Jones:** I don't disagree with you, but let us be honest, you could have done that anyway. You are saying only £40 million—that is astounding.

Q84 **Chair:** Okay, the point has been made. Whatever happens to Ajax, will Merthyr Tydfil be used to build anything else that General Dynamics might procure?



## HOUSE OF COMMONS

**Carew Wilks:** We are very committed to the long-term position in the UK. We are looking forward to the land industrial strategy as an important part of changing the way in which defence procures in the UK, to avoid the feast-or-famine arrangements of the past. We are very keen to sustain the skills and the knowledge that have been built up through Ajax over the past 10 years. We wish to continue that at Merthyr Tydfil and—

**Chair:** Okay. That is very clear. A short question from Stuart and then finally to Richard.

Q85 **Stuart Anderson:** What is the per cent net profit on the Ajax contracts to General Dynamics?

**Carew Wilks:** I am not able to take that immediately. I can come back to the Committee, if necessary.

**Stuart Anderson:** If you can write to the Committee, that would be good.

Q86 **Chair:** We are coming to a close. I have a couple of final fast questions. If you do not have the answer, I will be grateful if you could write to us. This is a fixed budget of £5.3 billion, is it not? If you exceed that, if problems continue, who pays for any additional expense, if the decision to continue trying to get a result is chosen?

**Carew Wilks:** As I said, we are very committed to fixing those problems within the context—

**Chair:** My question was clear-cut: if it is over the budget, who pays the excess?

**Carew Wilks:** It is not over the budget—

**Chair:** I hear that. If it does go over—hypothetically speaking, if we end up with more problems than we can solve?

**Carew Wilks:** We will solve those problems on the equipment within the existing contract—

Q87 **Chair:** If you feel uncomfortable answering, just say so, but do not give me another line. This is the slight frustration we have. There is a possibility, the way the drive path at the moment is, that this will cost more than the original amount, okay, because of problems. We are not even having tests continue at the moment. You have only delivered a handful and the package of delivery was supposed to be back in 2017. It could easily go far more than the original projected cost, so my question is, who pays if we say, "We just need to fix these final things. It'll be another half a billion"? Who pays for that? If you don't know the answer, that is fine.

**Carew Wilks:** I absolutely know the answer. These problems, we will fix them within the contract, and we will deliver within the contract—

**Chair:** That is your answer, but that is fine.

**Carew Wilks:** We are confident that we can fix these—



## HOUSE OF COMMONS

**Chair:** You have made that very clear this whole afternoon.

Q88 **John Spellar:** What does the contract say? If the costs exceed, which of the parties is liable for those costs?

**Carew Wilks:** General Dynamics holds the risk of costs associated with meeting the requirement. That is what I have committed to achieving—the requirement of the contract, the full capability for the British Army to protect our soldiers on operations with this great capability at the contract price.

Q89 **John Spellar:** To what extent have variations to the contract by the client potentially created a question mark over that?

**Carew Wilks:** Clearly, if there are new requirements that the customer would like to add to the contract, that would be the subject of separate negotiations.

Q90 **Chair:** This is your final opportunity here in front of the Committee. Is there anything you would have done differently? The Procurement Minister is about to come in to sit in the same seat, literally, as you. If you could do it all again, what would be the two things that you would want to do differently?

**Carew Wilks:** Given the situation we have with noise and vibration, which was a surprise to us last year, we would want to incorporate—

**Chair:** I was thinking strategically, in the procurement cycle, rather than the individual operational challenges that you faced.

**Carew Wilks:** I think that integration aspect of the total—

Q91 **Chair:** You were designing something and manufacturing it at the same time. Is that not something that you would avoid trying to do in the future?

**Carew Wilks:** The concurrency of development and production brings the capability into service more quickly than a more sequential route, but introduces risks. Those need to be more carefully managed in the future.

Q92 **Chair:** You have put your finger on the point. When you do those two things at the same time and you end up making mistakes, it costs more and you do not save time at all, as we have seen. This project started in 2010.

My final question is a technical one on Brimstone. This is one of our most incredibly capable missile systems, British-made. When was the decision made to introduce it to AJAX?

**Carew Wilks:** There is no formal decision. We have looked at the possibility of integrating Brimstone on to the Ajax family. We have provided a concept demonstrator, which we have done jointly with MBDA.

Q93 **Chair:** So our most potent weapon system on the back of build that we could use, and we are now just talking about whether to strap it to the top of AJAX.



**Carew Wilks:** From General Dynamics's point of view, we are ready to integrate any other systems that may be required on to the platform.

**Chair:** All right. It has been illuminating—lots of thoughts. We have asked you, I think, for a series of reports in writing. We will be very grateful for that. You will understand the frustrations here. This is a big programme that is taking an awful long time. That is why we want to get to the bottom of some of the details. You have given us an awful lot of thought, which we will now put to the Government, posing similar questions. You are more than welcome to stay in the Committee room. I will draw this to a conclusion, and we will go off the air briefly while we change seats. Thank you very much indeed.

## Examination of witnesses

Witnesses: Jeremy Quin, David Williams, Lieutenant General Wooddisse and Major General Hodgetts.

Q94 **Chair:** Welcome to part two of the Defence Committee hearing on "Ajax: recent developments". We are very grateful to the Procurement Minister for joining us in situ; it is fantastic to see you in person. We also have David Williams, who we have not seen before in this Committee, who is the new permanent secretary at the Ministry of Defence. Welcome to you, sir. We also have Lieutenant General Ralph Wooddisse, who is the Commander Field Army in the Ministry of Defence, and Major General Timothy Hodgetts, who is the Surgeon General.

Welcome to you all this afternoon. We have done introductions, and I know you watched part one of the session. Before we turn to Ajax, I have two short questions, if I may, to put to you as the Procurement Minister. One is to do with the numbers of people being pinged because of the covid-19 app. Could you please provide an answer today, or perhaps in writing? What percentage of the military workforce is being forced to self-isolate? I understand it is around 5%. If we start getting towards 10%, you would understand that there would be concerns operationally. NHS staff have been exempt from that, and are able to continue their duties. The question is whether we would help you call for that exemption to be extended to those in our armed forces, so that they can continue watching our backs. Is that okay with you, sir?

**Jeremy Quin:** Yes, Chair.

**Chair:** The second is a stock-check of our surface fleet destroyer capability. A quick overview of the Type 45s: HMS Defender is part of the carrier strike group now. HMS Diamond is experiencing technical propulsion issues and has gone into maintenance. HMS Daring and HMS Duncan are both in deep maintenance, and HMS Dauntless is part of a power improvement project upgrade, leaving just HMS Dragon, which is going through planned maintenance as well. Given our national and international security obligations, as outlined in the integrated review, is it not operationally unacceptable that the Royal Navy's destroyer availability is now reduced to a single ship?



**Jeremy Quin:** An area that the Secretary of State and I have absolutely focused on is improving the availability of our destroyers and frigates. Your facts are right; Mr Francois asked exactly that question. I think the Committee would absolutely agree that the PIP is essential in order to upgrade the capabilities of the Type 45s. Dauntless will be out of that PIP by the end of the year. We will have another Type 45, depending on operational commitments going in. I hope to see Dragon back on operations in the early autumn. As you pointed out correctly, we have two Type 45s embarked with CSG. Diamond has current issues, although I hope they can be rectified shortly.

There is a focus on this issue. We have brought back into the Navy, so that they have the direct control of their strategic suppliers. Part of the issue is making certain they have direct contact with their suppliers to gather spares. To have them, hopefully, at the quayside, when ships come in for deep maintenance is something I am very concerned about. I have spent some time on Duncan talking to the ship's company about the frustrations of long periods in deep maintenance. You are right to raise the issue.

Q95 **Chair:** It is important that we raise this issue because it is an operational concern. HMS Defender is now our only currently operational Type 45. If that ship experiences propulsion problems, which we have seen across the Type 45 family, our carrier group would be forced to lean on a NATO ally to ensure that we have destroyer protection. That really indicates that, bottom line, we need a bigger Navy.

**Jeremy Quin:** Above all we need to ensure—which is the pith of your question, Chairman—that the ships we have are in good order and capable of doing the tasks that we set for them.

**Chair:** Six destroyers, when there is always going to be one in deep maintenance or maintenance and there is always going to be one training—I think the point has been made.

**Jeremy Quin:** It has.

Q96 **Chair:** I understand that the Secretary of State, on his visit to the United States, visited the General Dynamics headquarters and had a meeting with the head of General Dynamics.

I don't know if you can begin today by sharing whether anything about the project over here was discussed and maybe your initial thoughts, having heard the first hour and the discussions we have had with representatives from General Dynamics.

**Jeremy Quin:** I was not privy to meetings of the Secretary of State and GD, but I can certainly confirm that I have met in person, in my office, the chief executive of General Dynamics. I am very impressed with how she is leaning into these issues. It is recognised by General Dynamics that there is an issue here that needs to be fixed. We will work together. I think there is a much-improved degree of collaboration between my team and General Dynamics UK, and that is being helped and supported by a very



active interest from the global chief executive, which I very much welcome.

- Q97 **Mr Jones:** Jeremy, on 23 June the Secretary of State was asked a series of questions about this programme. He told us that 14 vehicles are being delivered. We just heard from General Dynamics that 25 vehicles have been delivered and meet initial operational capability, so why is there a difference in these figures?

**Jeremy Quin:** I fear I might complicate matters further with a third number, so I apologise, Mr Jones. My understanding is that we currently have 26 vehicles delivered—25 needed to be delivered to meet the IOC threshold. My understanding is that we have 26 currently that have been delivered, gone through GAT and been accepted into the Field Army.

- Q98 **Mr Jones:** Why is it that we have paid General Dynamics something like £4.2 billion of taxpayers' money and only received 26 vehicles? The figure is a lot higher than is in the briefing notes.

**Jeremy Quin:** My number is £3.167 billion under the contract, but we may need to unpack that, Mr Jones, as there are other things as well. Let's leave that to one side.

**Mr Jones:** No, no—let's just accept your figures.

**Jeremy Quin:** It is still a lot of money. First, I would say—you would all recognise this—that had we only paid for the aircraft carriers when they had arrived and were in service with the Royal Navy, a lot of designers in the supply chain would have gone bust in the meantime. So, part of the funds that we have been paying is all the design work up to capability drop 4. It includes the training modules. It includes a lot of manufacture. There are not just those vehicles that have been delivered to us; there are other vehicles and hulls. There are 115 vehicles that are actually being assembled in total.<sup>1</sup> There was a large investment into Merthyr to get the whole thing up and running in the first place. I don't think this is a case of spending a lot of money for nothing. There is a lot that has come via it.

I would also say that we have a strong and firm price contract, and that has advantages. It may have disadvantages when you are paying money up front. It has advantages when you reach a bend in the road and you need to get things resolved, because the price at £5.5 billion is a firm price and General Dynamics need to honour their contract, which, from what I was hearing, they were saying they absolutely will.

- Q99 **Mr Jones:** They did, but it is quite clear that if we get to £5.5 billion and more money needs to be spent, the taxpayer is going to pick it up.

I accept that you have picked this hot potato up. You weren't involved in the original contract. I accept what you say in terms of carriers and others—we can't just allow industry to develop it and then buy it at the end, but the problem with this contract is that all the risk is with the taxpayer, isn't it? If you look at what we have just heard from General

---

<sup>1</sup> Note by witness: As at 15 July 2021, 116 platforms have been manufactured.





## HOUSE OF COMMONS

Dynamics, they have put no risk up front. I accept there might be a need for a job creation scheme in Merthyr Tydfil, but £3.8 billion for 4,000 jobs is a lot of investment. Why was there not some more risk sharing with General Dynamics?

You have just renegotiated or recast the contract. They have only put £40 million up so far, according to their evidence. This is a bad deal, isn't it? You can admit it, because it was not agreed on your watch, was it?

**Jeremy Quin:** It wasn't, but it is my job to fix it. But, before I go down that route, the taxpayer has paid a lot of money up front, but under the terms of that firm-price contract, it is up to General Dynamics to deliver the 589 vehicles to us, and we need to ensure that those vehicles work and are fit for purpose. I made it very clear that IOC will not be declared until such time as we have resolved the serious issues.

I heard the tail end of the last session, in which the Committee members were asking General Dynamics what their profit margin was going to be; I think Mr Anderson asked the question. I don't know how they can answer that, with respect to General Dynamics; they may or may not be nodding behind me, or shaking their heads. The reality is that they will not yet know the costs associated with delivering those 589 vehicles. We have committed to spend £5.5 billion with General Dynamics in return for 589 vehicles, and they have committed to ensure that we get those 589 vehicles. That is the nature of a firm-price contract.

Q100 **Mr Jones:** Could you explain the relationship between General Dynamics Land Systems UK and the main parent company? Let us say that the bucket of money that you have got there—the £5.5 billion—is all spent and we do not actually have vehicles that are capable of being taken into service, the only person who will pick up the tab further on is going to be the taxpayer, isn't it, under this contract?

**Jeremy Quin:** It is a firm-price contract, so we pay General Dynamics £5.5 billion and they are required to provide us with the vehicles.

Q101 **John Spellar:** What about variations to contract?

**Jeremy Quin:** That is the contract as per the December 2019 recast.

Q102 **Mr Jones:** So you are saying that if, sometime next year or even later this year, your £5.5 billion pot of money has disappeared, General Dynamics will have to pick up the tab—let's say it costs another £2 billion—to deliver these vehicles?

**Jeremy Quin:** That is what the contract says. I am looking to see whether the permanent secretary is nodding his head. He is putting his hand in the air. If he wishes to add anything to that, he is welcome to do so.

**David Williams:** Yes. Look, it is actually quite a strong contract. First, we have the ability to hold back or retain payments as milestones are missed. There are provisions for liquidated damages—albeit, given the scale of the overall contract, they are quite modest—for delay. As a firm-price contract, which includes a parent company guarantee, in the end it is for



## HOUSE OF COMMONS

GD to deliver 589 vehicles within that price, as the Minister said and indeed as GD have said. That includes bringing all the vehicles up to the full specified capability standard in the contract. If it is a modest overrun, that is one thing. If it is a major overrun, no doubt there would need to be compensation around the commercial incentives and the ability of the company to fulfil that contract. However, both we and the company are focused on making the current contract work, and it is not our expectation that the taxpayer will need to pay more than we have currently set out in the contract to get these vehicles into service.

**Q103 Mr Jones:** If it is such a good contract and you have a clause in there to hold back and retain money, why have you not done that before now?

**David Williams:** In terms of your question about the profile of spend, first, as the Minister said, it is not unusual in complex defence contracts for up-front development costs to be funded by the MoD rather than by the company. That is standard in many of our major equipment programmes. The £3.2 billion spent to date includes the development and demonstration phase, which will, in big handfuls, have been around three quarters of a billion pounds for development and one-off costs. We have also spent just over £2 billion on manufacture, to pay not only for the vehicles that we have accepted and fielded into the Army for trials and testing, but for sub-systems and components—armour packs, for example—for turrets and hulls that have been built already. The manufacturing phase of the programme is quite well advanced.

**Q104 Chair:** Why are you building things if they don't work? Why are you paying for manufacture when the design has not been completed? You are spending money—you have just said £2 billion—to go into the build phase, when we have still not ironed out all the niggles and all the problems, which are now coming to fruit.

**Jeremy Quin:** I will start, and the permanent secretary may wish to contribute. A question was asked earlier about the risk being taken by General Dynamics, and that is a real risk they are taking, because they are manufacturing vehicles that they may need to change and perform engineering fixes to. In any event, there are going to be upgrades to get them to capability drop 4 before we can declare FOC. But the reason for the combination of the demonstration and manufacture phase dates right the way back to 2014. There were delays to the project. Although there was only a smaller combination then, it was in order to try to ensure that the vehicles were brought into service earlier, and it has not happened.

**Q105 Chair:** I don't want to interrupt Kevan, who wants to continue here, but you made a comparison with the carrier. The carrier is a prototype, but it is also the final result, because you build only one of them. You don't make one and then say, "Right, we have learned from it." With this, you should at least procure one that comes off the conveyor belt and works. Once you are satisfied with that, you can then build more, plus the variants as well. I make it very clear that you have inherited all this, and we fully understand that, but the approach here has been to manufacture and design at the same time—we called it "design and make" when I was



## HOUSE OF COMMONS

doing DT. That is not the best approach here, which is why you are running into problems today. You are spending money for these 25. The question is why you did not send them back when they didn't work and say, "We are going to stop spending." The question leading to a question here is: have you actually stopped giving any funding to General Dynamics because of the problems that you have incurred?

**Jeremy Quin:** We haven't paid any money this calendar year to General Dynamics.

Q106 **Chair:** Because of these problems, or simply because they are not due any funding?

**Jeremy Quin:** We pay against milestones, and invoices have not been presented because those milestones have not been hit.

Q107 **Mr Jones:** I think they would be a bit cheeky to ask for any money, personally. I will come on to some other questions in a minute, but I am trying to get my head round it. It seems to me that General Dynamics have not really put anything up here. They have had a good deal: £40 million for some work at the actual factory. In terms of the guarantee of the main parent company—this might be a question for the permanent secretary—is that capped at some level, or is it just an open-ended guarantee?

**Jeremy Quin:** I know there is a permanent guarantee in the contract, because I have seen it. I have not read the fine print of it. It would be normal for such things to be uncapped, but I don't know whether the permanent secretary is able to add any light on that.

Q108 **Mr Jones:** If you don't know, you can write to us.

**David Williams:** If we could write, that would be preferable.

Q109 **Mr Jones:** Let me finish off the last few questions that I have in this opening session. In the House on 8 June, you stated that under the recast, the "forecast initial operating capability" was to be delayed a year until 30 June 2021 "at 50% confidence, with 90% confidence for September 2021." When do you anticipate that the IOC and subsequent stages of the programme will be achieved?

**Jeremy Quin:** I would be very surprised if it was September, Mr Jones. I know that will not come as a surprise to you. What I said in the House at the same time is that we have serious issues with noise and vibration. We have to resolve those before we can declare IOC. We have got the trials, which I hope will be able to resume at Millbrook. We need to get through those trials, get the data and then be in a position to work through what engineering fixes if any need to be applied. And then we will be able to know IOC.

Q110 **Mr Jones:** How many vehicles should have been delivered by now under the original contract?

**Jeremy Quin:** From memory, capability drop zero is 52.<sup>2</sup> There are more that are ready to be delivered, I suspect, to the MoD, but ultimately we

need to get to IOC. To get to IOC, as I made clear, we need to have a resolution to the noise and vibration issues.

**Mr Jones:** Thank you.

**Jeremy Quin:** Chair, I do not want to break the flow of the right hon. Gentleman, but you very kindly said that I could say a few words, which I would love to do, just to share with the Committee my latest thoughts.

**Chair:** I am conscious that we have burned through almost half of our time, and we are still on question one.

**Jeremy Quin:** I am not going to run away, Chair, so if you need me here for longer. This is an incredibly important programme and I am not going to go until you kick me out.

Q111 **Chair:** That is noted, thank you.

**Jeremy Quin:** If you don't mind, I think there are issues that might be of help to the Committee.

I have described Ajax as a troubled programme—I wish that it wasn't, but it is—and it requires a lot of work from ourselves and our industry partners to get ourselves back on track. We can't be 100% certain that that can be achieved but this programme matters to the British Army, to 4,100 employees and to 230 companies across the UK, and we will do our utmost to succeed.

There is a serious problem related to noise and vibration. I personally intervened in March to require that IOC would not be declared without my explicit agreement. As I said previously, we require a clear path to be established for the resolution of these issues. This is critical to ensuring that the vehicle is capable of fulfilling the training and exercise role due to be undertaken at IOC. Given the combined demonstration of manufacturing phases, it was always the case that GD accepted the need to bring the vehicles up to a higher standard required of future capability drops. This remains the case, and we have a strong, firm-price contract. We have the support of GD from the highest levels in achieving our objectives.

The programme has faced very significant scrutiny, which has revealed a number of concerns; most importantly, while our health and safety review is still ongoing, I am concerned by some of its preliminary findings. Our people and their wellbeing must always come first. We have been in contact with the Health and Safety Executive, which is content with the investigative approach we are taking, and I have directed that the full report will be shared and discussed with the HSE.

While the incumbent team has made great efforts and significantly improved joint working with General Dynamics, we believe that it is

---

<sup>2</sup> Note by witness: GD have built 53 Capability Drop (CD) 1 vehicles and will retrofit 6 CD0 to CD1. The CD1 fleet will be 59 once retrofit action is complete.



## HOUSE OF COMMONS

appropriate that the programme receives the attention of a full-time SRO, with previous experience of difficult programmes, who can focus 100% of their time on working with DE&S for its delivery. We are currently undertaking a search for the right person who will be responsible for the delivery of the programme through to FOC, or indeed, informing Ministers if, which we sincerely hope is not the case, this is for any reason unachievable. This is part of a wider push led by the permanent sec and me to ensure that we have a greater number of full-time SROs across all our complex programmes. That was in any event going to be rolled out from the autumn and has the full support of our TLBs.

I do not want the new SRO to be distracted by analysing past decisions but nor are we willing to wait until the end of the programme before we gather the facts about what may have been executed better during the course of that programme. We therefore intend to appoint a review to report to Ministers on these important issues.

Our current status is that we need the Millbrook trials to identify and to establish causal links. We have already enough data to confirm that there is a problem, but the trials have been paused in order to ensure that crews are not put at risk. I hope that they will be able to resume shortly, but only when we are confident about the means to do so safely.

Lastly, I can assure the Committee that GD are now totally focused along with us on achieving resolution. I hope and believe that if this vehicle had been procured after DSIS and the changes in the IR, it would have been better designed to succeed. It still can, however, and that is absolutely our objective. I am very happy to answer your questions, Chair, as I have been so far. I am sorry that it slipped my mind that I had those points to add, but I think they may add to your deliberations.

- Q112 **Chair:** Minister, we are very grateful for that. It is also the first time that I think you have been very honest and very candid about the fact that we do need potentially to draw a line in the future, after your review has taken effect, to make a judgment as to whether we can continue or not, depending on the outcome of that review. That is something that the Committee would very much welcome. I know that you are going to come back and say, "Yes, all hands to the wheel," and you will make it work and so forth.

**Jeremy Quin:** We are committed to it, and we want it to succeed. I am sure it can succeed.

**Chair:** Ultimately, it is taxpayers' money. After your review has done its analysis, if it is appreciated that it is a bit like Sisyphus pushing that rock up the hill, and you are never going to achieve it, ultimately a line needs to be drawn and we do need to move on. I know that that is going to prompt further questions, and I want to get to Stuart, but is it a quick one, Mark?

- Q113 **Mr Francois:** It is only another one on ammunition, Minister. On 23 June, Air Marshal Knighton told us, "We have a plan to purchase



## HOUSE OF COMMONS

appropriate levels of stockpile” ammunition, “and the funding is in place for that. I do not have the figure in front of me, but we will make sure that Min DP has it before he comes to the Committee on the 20th.” The reason is that there are lots of accusations that the ammunition is extremely expensive. So how much does the ammunition cost?

**Jeremy Quin:** Well, it is more expensive than the 30 mm ammunition. I am going to disappoint Mr Francois, because this is an area where for operational reasons we do not talk about the amount of our stockpile, and for commercial reasons we cannot talk about exact prices. I can confirm that it is absolutely right that it is more expensive than the 30 mm.

**Mr Francois:** Forgive me: that tells us absolutely nothing.

**Jeremy Quin:** Richard Knighton—

Q114 **Mr Francois:** No, I am sorry, Minister: you are not going to get away with this. Rich Knighton told us you would come to this Committee and tell us how much it cost. I tabled a question; you have claimed commercial confidentiality. This programme is already in terrible trouble. It is £5.5 billion. You just told us the SRO wasn't even full-time on the programme. I am going to ask you again: how much does a round of the new 40 mm ammunition cost?

**Jeremy Quin:** I am going to ask if the permanent secretary can share with us any views that he can on that. But do please—I know this Committee is keen to have vehicles that aren't outgunned. The 40 mm rounds are far more effective, and we can achieve more with one round than we can with a clip of three, which was, I believe, standard for the 30 mm.

Q115 **Mr Francois:** All we need, sir—we don't need the PR, we just need the figures. How much?

**Jeremy Quin:** Which may be the one thing I can't give you.

Q116 **Mr Francois:** Then I am terribly sorry, sir, but bearing in mind the trouble you are already in, that is not a good move on your part.

**Jeremy Quin:** May I see whether the permanent secretary can—and if the permanent secretary thinks that I can release that, and that it is public information that we can share, it would get me out of the spot here, but I believe commercial sensitivity means that it is quite difficult to do so.

**David Williams:** My understanding is that it is commercially sensitive, although if the Minister was content we could certainly write to the Committee with that on a privileged basis, and we might just use that time to check that it is as commercially sensitive as we think.

Q117 **Mr Francois:** But why not just tell us now, then? Just tell us: what does it cost?

**David Williams:** Precisely because it is a pretty commercially sensitive number.



## HOUSE OF COMMONS

**Chair:** Okay. We are not going to get any further with this. The Minister knows that the same gun is used on the Jaguar—the French recce vehicle—as well. We may turn to them and ask them how much it costs them as well.

**Mr Francois:** But Chairman, for the record, we were promised the figures.

**Chair:** The point has been made, and we are asking the Minister to reconsider, and bearing in mind what he has heard today—

**Mr Francois:** This is unacceptable.

**Chair:** Mark Francois' concerns are on the record.

Q118 **John Spellar:** If you don't mind, Chair, I think the Minister should explain why it is commercially sensitive.

**Jeremy Quin:** You are asking me to explain to yourselves and Mr Spellar and Mr Francois why it is so commercially sensitive. I can't really do that. I will probe with the permanent secretary how commercially sensitive that is, because clearly it is something that you would like to see, and we would like to share it with you if we possibly can. And thirdly—

Q119 **Mr Francois:** This is embarrassing.

**Jeremy Quin:** No, I don't think it is, because if it is much more effective then there would be a good reason to pay more for it.

Q120 **Chair:** It is, but you are looking at tenfold the costs; that is the concern.

**Jeremy Quin:** I had better not speculate, but if we can share it with you on a privileged basis, let's do that. Let's see what we can do.

**Chair:** It is a telescopic round, so the actual munition itself, the energy that is created—it is caseless, and that jacks the price up.

Q121 **Mr Jones:** Richard Knighton also said it is increasingly the remit of the MoD to hide behind commercial sensitivity in relation to questions when they have actually given some of this information on other programmes before, quite openly.

**Chair:** To give this Minister the credit, he has heard the view of this Committee and I hope he recognises that he will not be hiding behind commercial sensitivity.

**Mr Jones:** No—it is his civil servants who are.

**Jeremy Quin:** Excuse the phrase: Mr Jones has given me the ammunition, so I will see what we can do, and if we can possibly do it, we shall.

Q122 **Sarah Atherton:** Minister, with recent decisions made over the future of Warrior and Challenger and our commitments in Mali and deployment from 2022 onwards, are you looking at contingency planning if this capability is not fieldable?



## HOUSE OF COMMONS

**Jeremy Quin:** In my experience of the MoD, everyone is always looking at contingency planning for virtually everything, which is a good thing. But I think this would be a useful opportunity to bring in the Commander Field Army to talk about contingency planning if, as we sincerely hope is not the case, there is a significant delay on AJAX beyond the scheduled FOC of 2025

**Lieutenant General Wooddisse:** As you would expect, conscious of the difficulties that the programme is in, we are contingency planning against not being able to use AJAX in the middle of the decade—or 2023, which I think is when we first want to use it. It is not pencilled in to go to Mali as yet, but it does have another operational commitment and we will have a way of mitigating that gap using other vehicles.

Q123 **Chair:** May I probe a bit further on that? I said at the very start that this is the operational confusion that I do not understand from the Command Paper. I express a concern that I and other Committee members have picked up that, if the senior military had their choice, the Ajax programme would have been cut in the integrated review. That is the one platform that we would have got rid of. You would have stuck a turret on to Boxer. Because you have Boxer coming in, replacing Warrior, which had a turret itself, with Boxer on its own you can move your troops into the theatre of war, on to the frontline, but you cannot protect them. That is why you are forced to continue with AJAX, because you need the gun on the top.

**Jeremy Quin:** I have comments as well but, General, would you like to come in first?

**Lieutenant General Wooddisse:** They do two very different things. AJAX provides an ISR platform. It has a fantastic range of sensors that allow it to do something very different from what Boxer can do. It is that ability that the Army needs. It allows us to be able to see at distance, to hear what is going on, and to detect CBRN—chemical, biological, radiological and nuclear threats—and it has a scanning capability that means that we can do that almost automatically. That is a very different capability than Boxer or Warrior represents. We think that we need AJAX and we want AJAX. We think that AJAX will provide us with a step change in terms of how we—

Q124 **Chair:** Nobody would disagree with any of those assets that are brought to the fore with AJAX. It has formidable capability from an ISTAR perspective, but it is the big turret and the 40 mm cannon that makes the difference compared with Boxer. When you have dismounted infantry—you know this, sir—you need to be able to protect them. That is what the 30 mm RARDEN cannon did with Warrior. The same cannon was also on Scimitar, the predecessor to AJAX.

If you are introducing a wheeled vehicle to move your troops on to the battlefield, you need to protect them. That is where the gun comes in. Now that you recognise that perhaps you might need to consider a world without AJAX, the question then is whether you expedite Boxer with a





## HOUSE OF COMMONS

turret, which currently I do not think you have planned. If you have, Minister, we would be grateful to hear it, because that would allow us to move forward.

**Jeremy Quin:** I will start, and the general is very welcome to correct me on matters of operational analysis. In terms of the protection of Boxer, the field Army is looking at its operational analysis of how it works in a post-Warrior world, but there are a range of means whereby the Army can deploy firepower on the battlefield, obviously including the upgraded Challenger 3, helicopter capabilities and other means of delivering effect.

In terms of Boxer, you asked a direct question, Chair. We are keen to accelerate Boxer. I think the Secretary of State has made that clear. Boxer is a modular vehicle—something that you are keen on—and there are opportunities there, not necessarily with the turret. There are other means of providing lethality, so the debate is far from closed on how we could enhance the capabilities of Boxer. It is the general's field, and he is very welcome to disagree or to contribute to that debate if there is something that he wishes to add.

Q125 **Chair:** General, when you answer, please say what would fill the gap. You are getting rid of Warrior.

**Lieutenant General Wooddisse:** You have a range of things that could fill the gap, from Challenger 3, AH-64, long-range precision munitions—

Q126 **Chair:** A main battle tank would fill the gap.

**Mr Francois:** As a recce vehicle.

**Lieutenant General Wooddisse:** Not as a recce vehicle—as a means of protecting Boxer.

Q127 **Chair:** If suddenly we were required to upgrade and send some forces out to Ukraine immediately, it would take three weeks to get any numbers of Challenger to the frontline. Challenger cannot replace a recce vehicle.

**Lieutenant General Wooddisse:** I am not saying that it should replace a recce vehicle. What I am saying is that it provides additional protection for Boxer.

Q128 **Mr Francois:** I think the heart of the Chair's question was, if you cancel AJAX—the longer this hearing goes on, the more likely I think it is becoming—what will you do to provide a reconnaissance capability for the British Army? The Scimitars are gone. You have cancelled Warrior. If you cancel AJAX, how will you provide a reconnaissance capability for the British Army?

**Chair:** And the protection for your troops.

**Mr Francois:** No, just the recce bit, sir. How will you do it?

**Lieutenant General Wooddisse:** That absolutely isn't what we want, as you know, Mr Francois.



## HOUSE OF COMMONS

Q129 **Mr Francois:** Yes, but if it comes to it.

**Lieutenant General Wooddise:** We would have to use a combination of UAVs and ground-mounted reconnaissance. I think AJAX presents us with a much better way of understanding what is going on on the modern battlefield than those two combinations.

Q130 **Mr Francois:** Ground-mounted reconnaissance? You mean blokes walking.

**Lieutenant General Wooddise:** No, I mean Jackal or another AJAX equivalent.

Q131 **Chair:** Minister, you are familiar with this. The Boxer variant is modular as you said—you can stuff your ISTAR in there. That might be something as a plan B that you might want to take away with you.

We need to make progress. Over to Stuart Anderson.

**Jeremy Quin:** Chair, if I may. I am being very open with the Committee, as you know—

**Chair:** You are.

**Jeremy Quin:** We are committed to this programme. We want it to work. That is what you heard from the General. In any demonstration phase, you have issues. Noise and vibration are regular issues with armoured vehicles. We need to get to the diagnostics and to fix this. That is our objective. That is what we are working to. I don't want to alarm the 4,000 people working on this. There is a huge amount of work being done to fix these issues and then make certain we can bring it into service. That is our objective. It has a fantastic capability; we just need to make it work.

You asked what we would do "in case of". It is a fair question to ask. The General and I have tried to provide you with an answer. No, it is not what we are gunning for.

Q132 **Stuart Anderson:** Minister, I have got your letter in front of me here. We wrote to you on 25 May. You put down £6.3 billion, give or take, and the total spend so far is £3.7 billion, but you have mentioned the £5.5 billion fixed contract. That leaves about £800 million. I will come back to that in a minute.

You have mentioned that you have the approval to invest in additional expenditure to cover other elements in the contract with General Dynamics, including but not limited to cased telescopic 40 mm cannon, training and other areas.

Why were these not included in the initial contract, because they are obviously needed? Are they going to exceed that £800 million or does it go significantly over that, or is there no number on that?

**Jeremy Quin:** It is roughly £850 million. I have no reason to believe that I am aware of that that number will be exceeded.



The reason it is a different contract is different suppliers. For example, the armament comes from CTAI, a Nexter-BAE combination. That is the overall amount of money coming primarily from other suppliers and therefore it could not be included within the contract with GD.

Q133 **Stuart Anderson:** But in your letter, do you not state that the approval to invest an additional—oh, I see—other than the initial contract—

**Jeremy Quin:** If I can help, Mr Anderson. There is a total envelope, of which £5.5 billion is the contract with GD. There is then another £850 million or so for other elements, including training over the first 10 years. There are other elements that need to be paid for, which are not necessarily supplied by GD and therefore there are separate contracts.

Q134 **Stuart Anderson:** That is understandable—thank you. How far are we into that £850 million so far?

**Jeremy Quin:** My maths isn't up to it, but it is £3.167 billion we have spent as of June 2021 out of the £5.5 billion, but the total amount of money that has been spent is £3.755 billion, so it is roughly £500 million-odd or just shy of that of the £850 million.

Q135 **Stuart Anderson:** You are confident that with the remaining £350 million, we can get everything we need within that price.

**Jeremy Quin:** I am looking at the permanent secretary as I say this: I am not aware of any changes to that amount of money that would lead us to exceed the envelope that we have approved. If David is aware of anything on which we are overspending or we are worried about, he should say so now.

**David Williams:** No; that is also my understanding.<sup>3</sup>

Q136 **Mr Francois:** Minister, in March 2021, the Committee produced a report called "Obsolescent and outgunned: the British Army's armoured vehicle capability". I am going to read you one sentence: "This report reveals a woeful story of bureaucratic procrastination, military indecision, financial mismanagement and general ineptitude, which have continually bedevilled attempts to properly re-equip the British Army over the last two decades."

The report shows that the TRACER programme, a precursor to Ajax, was cancelled in 2000 at a cost of £131 million wasted. FRES was cancelled in 2008, with £133 million wasted. It was described by a predecessor Committee as "a fiasco." The Warrior capability upgrade, which we were very critical of in this report, was cancelled in the Integrated Review—

---

<sup>3</sup> Note by witness: Figures and interpretation are not accurately reflected due to complexity. The £6.354Bn whole life budget cost until end of the manufacture phase includes £832M beyond the £5.552Bn GD firm price contract for equipment and initial support. £588M of the £832M has been spent so far leaving c.£244M (not £350M) currently funded. This does not include broader operating costs nor costs outside the programme following manufacture and FOC



## HOUSE OF COMMONS

£595 million. By my maths, £859 million was completely and utterly wasted on AFV procurement by your Department before we have even got to Ajax. Why are DE&S and its predecessor bodies so utterly useless in procuring armoured fighting vehicles for the British Army?

**Jeremy Quin:** You were in the Department at the time, Mr Francois, so as you know there have been—

Q137 **Mr Francois:** Minister, stop there before you go any further, because your Secretary of State tried this with some of us. I was never involved in the procurement process. They wouldn't let me anywhere near it, so I suggest that you don't go down that route.

**Jeremy Quin:** I wouldn't, but you remember the pressure that the Department was under during your tenure—

Q138 **Mr Francois:** Sorry, but as a matter of fact TRACER and FRES were cancelled long before I got anywhere near the Department. Warrior was cancelled long after I left it. Keep going.

**Jeremy Quin:** I think Ajax emerged from FRES. This is ancient history—you're absolutely right, Mr Francois—but it did emerge from FRES.

Q139 **Mr Francois:** But there is a pattern.

**Jeremy Quin:** I will tell you what I see as the problems and what needs to be done to improve them. You've heard talk about a land industrial strategy. For what it's worth, Chair, I totally agree with Mr Francois that we've not been smart at buying armoured fighting vehicles over time, and that is something I absolutely take away from the "Obsolescent and outgunned" report.

We will be bringing forward the land industrial strategy, but it has the same themes as DSIS. There are some micro-issues, such as the improved longevity of SROs, making certain that a higher proportion of their time is spent making certain that these things are guided through, and keeping a close eye on DE&S in our delivery, but there are other issues as well. Trying to go for too complex and too perfect a set of vehicles and then spending years trying to develop them is difficult. The other issue that has not helped is when, for whatever reason, projects move to the right, and then you have to get into recasts and re-discussions, and that doesn't help either, to be fair to our industrial partners. There is plenty that we need to learn on this, and we need to reply better.

Q140 **Mr Francois:** Thank you. In May 2021, after we'd been very critical of the delays to the Challenger 2 upgrade programme, hey presto the Department announced a contract to upgrade Challenger 2 to Challenger 3—150 vehicles for approximately £800 million pounds. By my maths, that's approximately £5.3 million per tank, and that's enough for two regiments and a small war reserve. With AJAX, we're talking about £5.5 billion for 589 vehicles so again, by my maths, it comes out at about £9.37 million per AJAX, which isn't quite double the cost of the Challenger 3, but's not far off it. Why is it that we are now procuring a



## HOUSE OF COMMONS

reconnaissance vehicle that costs almost twice as much as the main battle tank? How on earth did we manage to do that?

**Jeremy Quin:** I would assume, for the cost per unit on AJAX, you are getting the entirety of the vehicle, rather than the upgrade—

Q141 **Mr Francois:** I am taking the firm-price figure for the programme that you gave us in a letter a few days ago, and I am dividing it by 589.

**Jeremy Quin:** For AJAX, you are getting an entire vehicle, with all the electronics and the data and the ISR associated with that vehicle. For Challenger 3, you're getting a massive improvement in capability, but it is an upgrade to an existing vehicle.

Q142 **Mr Francois:** Yes, but how are we at nearly £10 million for one light tank? That's a phenomenal amount of money for one vehicle.

**Jeremy Quin:** This is one area that I should have added in to my list of areas where we've got to get better. These vehicles are incredibly technologically complex. The electronics and the data associated with AJAX are vast and significantly more expensive than anything we've had in the past. They're also harder to bring on. This is the other thing that I should have added to my list. The complexity of the programmes that all our TLBs are dealing with is vastly more than General Ralph would've known in his early days in the Army. These are very, very complex platforms.

Q143 **Mr Francois:** I understand, but for the sake of time, if you have an incredibly complex and delicate set of sensors and electronics, and a cannon that gets the hiccups, you do not want a vehicle that then vibrates massively, do you? You do not need a degree in mechanical engineering to work that out.

You are familiar with the concept of ground truth. In other words, whatever the spin and the PR, the ground truth is what is actually happening on the ground. I am sure that you have heard that phrase in the Department. Mr Jones and I have been speaking to some of the people who have had sight of the trials programme. Here is the ground truth that they give us—not GD, not your PR department, but the people involved or looking at the trials programme.

First, the vehicle vibrates too much, and it is far too noisy for the crew to operate. This is for the people involved in the trials, Minister. Secondly, the gun cannot traverse properly, and it still cannot fire accurately on the move. It can fire on the move, but the vibration affects the gyro stabiliser, so the gun cannot accurately engage targets on the move, at least not yet. If you remove the additional armour package on AJAX—remember that it is 43 tonnes, heavier than a Sherman tank, which means that it is very difficult to air-port it—you get very bad vibration as the vehicle is travelling cross-country.

Lastly, and perhaps most worryingly of all, when the vehicle fires on the move it leads to cracking in the hull. That last bit, if true—as I say, this is what we have been told—would be extremely serious, but even back in 2017, as Mr Jones said, there were lots of rumours of very bad vibration



## HOUSE OF COMMONS

problems. We know from GD's evidence of an hour ago that there is really bad vibration from the engine and the transmission. We know that personnel have been injured because of the noise. We know that personnel have been injured because of the vibration, so we are not imagining this. What is your answer to those people who are actually involved or have sight of the trials, not some bunch of PR merchants?

**Chair:** As a point of fairness, General Dynamics did qualify the cracking of the hull. Let's be transparent about that.

**Mr Francois:** In a sense, Chair, if the hull is cracking—I am not saying that it is; I am only saying that some people are saying that it is—that is most worrying of all, but remember that Warrior was an aluminium vehicle and AJAX is steel.

**Chair:** Mark, let's offer the Minister an opportunity. These are very similar to the ones that I read out at the beginning. Overall, it is a concerning programme. Individually, are you able to give any light on any of those issues?

**Jeremy Quin:** First, I want to pick up directly on the point about earlier reports of vibration. I answered a parliamentary question from Mr Jones, I think, on this. I said that the first evidence that we were aware of was in November 2019, which came from our soldiers who were engaged in the trials at that point. The first evidence as part of the AJAX trials was in November 2019. I have scoured the record since. We are going to know more after we have gone through the health and safety report and that is finalised. I think the Secretary of State has committed to publishing that.

Q144 **Chair:** Before you move on, what came out from the previous session, I think from Kevan's questions, was that the knowledge of the vibration issues stems from a lot further back than that.

**Jeremy Quin:** That is exactly what I want to address, Chair. That is why I wanted to raise it.

**Mr Jones:** May I come back in here? I don't dispute, as I think I said when GD representatives were here, that that was perhaps the first that you, or the MoD, knew about it, but I reiterate that in September 2017 a consultant who worked with General Dynamics informed it about this, as did a warrant officer, an officer who was part of the programme team, and at least two subcontractors. GD in its response to me said that it had had vibration problems going back 10 years. What I find a bit concerning is the fact that people were telling me and Mr Francois that in 2017, but the MoD did not know about it until 2019. It is quite clear from the response from GD that it had these vibration problems going back 10 years.

Q145 **Mr Francois:** Just quickly, as it is very important, when were you told, Minister?

**Jeremy Quin:** That is very simple. On vibration, 13 November 2020, but I want to come back on this because I want to make certain that Mr Jones has the full information. As I said, in November 2019 reports of vibration were received. I have gone back and asked again to make certain that



that is the case. It remains the case in terms of the AJAX trials—that is the first time that those were reported. But there were discussions. There was a safety notice put out in December 2018 regarding vibration on the Ares prototype, so there was knowledge of a vibration issue. To be fair, “You can’t go over certain speeds for more than eight hours,” is what I understand about it. There were certainly discussions about noise issues at an earlier date than that.

As part of the health and safety report that we have commissioned, and which the Defence Secretary has committed to publishing in due course, I do want to know more about those things—not because it is necessarily that someone will say, “Yes, there is a big problem and you should’ve known about it then.” It is normal on armoured fighting vehicles to have issues on both noise and vibration—that is not a surprise—but I want to know exactly the nature of those concerns.

**Mr Jones:** But what you have just confirmed is actually what I’ve been told. These issues were being raised in September 2017, and clearly the Department was told, you said, a year or so later.

**Mr Francois:** And then the Minister wasn’t told for another year.

Q146 **Chair:** Minister, could you please give us a timeline of when this information came forward? We’ve got two people wanting to ask questions in Derek—

**Mr Jones:** I think the Major General wants to come in.

**Chair:** That would be helpful.

**Jeremy Quin:** Do you want a timeline from me?

Q147 **Chair:** If you could give that in writing, I think the Surgeon General would like to contribute. We are keen to know when you became aware of this.

**Major General Hodgetts:** At the same time as the Minister in November 2020.

There have been questions asked, but only incompletely answered, about vibration injuries so far this afternoon, so can I give some qualification to that first?

**Chair:** Please.

**Major General Hodgetts:** We have received nine formal reports on eight service personnel through the Army Incident Notification Cell to date about vibration injury. Those are symptoms in soldiers such as back and joint pains and tingling in hands and feet. All those cases have been transient, so by the time they see the medical centre the following day, those symptoms have resolved.

Q148 **Chair:** Thank you for that. Can you put that into context? Those numbers are out of how many? If there were only eight people and they all



## HOUSE OF COMMONS

received injuries, that is a huge number, but how many people were going through the tests?

**Major General Hodgetts:** The denominator that we're currently working on for people who have been exposed to AJAX is 307.

Q149 **Chair:** Is that military alone, or does that include General Dynamics staff?

**Major General Hodgetts:** That is 296 service personnel and 11 civilians. It does not include General Dynamics.<sup>4</sup>

**Chair:** Okay. You don't have those figures. General Dynamics are still in the room, so if they could write to us about those numbers, that would be helpful. It would qualify the numbers there. Please continue.

**Major General Hodgetts:** Thank you. Two of your members talked about vibration white finger, or Raynaud's phenomenon, which is a vascular phenomenon, but it is a chronic symptom—it will occur over years. The AINC is really there to pick up acute injuries, so the only way that we're going to pick up chronic injuries from prolonged exposure is through additional surveillance, and we have questionnaire surveillance that we use to pick up chronic vibration injury. I cannot give you any numbers on chronic vibration injury at this stage, but we have no indication at present of anyone having suffered that white finger. I can give you hearing details if you so wish.

**Chair:** Thank you for that. Derek, do you have a question here?

Q150 **Derek Twigg:** The Surgeon General has partly answered the question. The important point he just made was about prolonged exposure. I am not sure how long the 300 service personnel or individuals actually spent inside using AJAX, so that would be interesting to know.

My original question was to the Minister. He said he became aware in November 2020. Was any other Minister made aware before that date?

**Jeremy Quin:** Not that I am aware of, Mr Chairman, no.

Q151 **Chair:** Would it be possible to look back and find out? It would have been raised in meetings and flagged up internally in the MoD. When was it first raised at a ministerial level that there were vibration and noise concerns?

**Jeremy Quin:** We can check, Mr Chairman. I took on the portfolio in February 2020, and I have checked and I am not aware of any previous notification on vibration—

Q152 **Chair:** So you were the Minister when all this first came to ministerial level.

**Jeremy Quin:** As far as I am aware, Mr Chairman, yes.

**Chair:** That is illuminating.

---

Note by witness: <sup>4</sup> This does include 1x civilian who works for GD. GD have declined the offer of the MOD's hearing assessment.





## HOUSE OF COMMONS

Q153 **John Spellar:** Has the Department indicated why it kept Ministers in the dark?

**Chair:** I have a theory.

**Jeremy Quin:** It is a commendable aspect of the MoD that people want to come with solutions rather than problems, but no one has shared with me why we were not informed—[*Inaudible.*]

Q154 **Chair:** Let me hypothecate. There was a real worry—and I have touched on this before—that Ajax was going to get cut, that there simply was not enough programme for all the land combat vehicles and one had to go. It ended up being Warrior and, to some extent, Challenger. If the Minister had been made more aware of the full scale of issues surrounding Ajax, it could have sealed the fate of this programme.

**Jeremy Quin:** That is your hypothecation, Mr Chairman. I do not attribute anything to it. I was told when I was told, and I was told the facts.

**Chair:** We will wait.

Q155 **Mr Francois:** The Chairman makes a really good point. This is in the context of the Integrated Review. Warrior is in terrible trouble—that has been running for 10 years like this. Some were saying cancel Warrior and some were saying cancel Ajax. Some involved in the Ajax programme would have been understandably reluctant to come to Ministers and say they had found serious medical problems, wouldn't they?

**Chair:** Minister, you can reply. I think you know where we are going with this. I am just conscious of the clock.

Q156 **Sarah Atherton:** The MoD commissioned testing by the Institute of Naval Medicine into noise and vibration in May 2020, a full six months before you say you were aware. I wonder why the AJAX trials were ceased, then restarted before the Institute of Naval Medicine had time to report and then stopped again. Why did the trials stop, restart and stop, and yet you still do not have a Health and Safety Executive report?

**Jeremy Quin:** Just to get the timeline—the permanent secretary may want to come in on this as well. It is worth reminding the Committee that this was not continuous progress. Particularly because of covid, things were stopping and starting quite a lot during the trials, as you will appreciate. The INM report was commissioned in May. They came to do the work in August. A preliminary report, which was regarded as inconclusive, was delivered in September, but did trigger a report from the Army environmental body, alongside DSTL, into inner-ear noise, in late October, early November. The decision was taken to stop, from memory, on 9 November—that was the succession.

A total a pause was put on. Work was undertaken into how trials could resume safely. Having reissued a safety case in March 2021, which had a number of changes, including new forms of hearing protection, a speed limit being imposed, activities being conducted in a way to reduce noise, the serials spread over a longer period of time and/or more frequent crew



changes, it was deemed possible for trials to resume under that new safety case. However, when it was identified that there was renewed concern regarding hearing loss, they were again paused—stopped. They have not resumed. They will only resume when we are absolutely certain, or as certain as we ever can be, that there will not be another safety incident. I say that while looking at the Surgeon General and permanent secretary. If there is anything they can add or wish to contribute, they are welcome to do so, but no one is putting their hand up.

Q157 **Sarah Atherton:** Major General Hodgetts, on the nine service personnel who have come to you with transient white finger, will they have ongoing monitoring for Raynaud's disease, which is obviously chronic? I am a little concerned that they will leave the service, develop Raynaud's disease and then who would pay their compensation.

**Major General Hodgetts:** Just to be clear, there are no examples of Raynaud's white finger. Transient symptoms that people have had are tingling in the hands and feet and back and joint pains. The white finger would only be seen with chronic exposure, and we have not seen those cases to date.

That is how I would answer the question to start with. Do you have a supplemental?

Q158 **Sarah Atherton:** No, I am just making sure that this is all on their military medical records for future reference.

**Major General Hodgetts:** Absolutely. Specifically, what we have now done is introduce a read code onto the medical record of everybody who has been on the AJAX platform. This will allow us to track them centrally. We will also be increasing the surveillance, both for hearing and the vibration.

For the vibration, you get a pre-exposure set of questionnaires, a post-exposure set of questionnaires and, while you are exposed, assessment by questionnaire at least annually. Clearly, if you have acute symptoms you would present yourself to the medical centre and be dealt with appropriately. What we are looking to try to identify are low-grade chronic issues that wouldn't necessarily take the individual to the medical centre.

For hearing, we have been very aggressively assessing the hearing of those exposed on the AJAX platform, but we have focused on the clinical priorities, on those exposed within a month. We have done this in two tranches. We did it in November 2020, and we are doing it again now, after the programme has ceased. We will assess everybody in due course, but we are focusing on those who have been exposed within a month because there is a window of opportunity to give people treatment that may partially or completely reverse any acute hearing loss. That is something we have come to call steroid rescue.

As of 16 July, we have fully assessed 110 people within the acute bracket, and, so far, there have been 28 episodes when hearing rescue was clinically indicated in 23 people. There have been five cases since last



## HOUSE OF COMMONS

November where a second treatment has been indicated. I can give you details on that if you wish.

The reality is that some individuals have declined treatment because it has to be done with informed consent. We can't force people to take treatment; we have to explain every treatment's side effects as well as effects. In total, in terms of administration, there have been 18 people who have undergone 22 episodes of treatment. Four individuals have actually not accepted that treatment. In 75% of cases of those treated, we have been able to demonstrate measurable improvement in their hearing, either partially or completely. So the treatment, when given in that acute setting, has averted substantial harm in a number of the most significant group.

**Chair:** Thank you for that. You have prompted more interest, but we are out of time. If we may, we will put down in writing some further questions to explore this, as there are already some questions heading to you from another session. I am conscious of the time; the Minister and the team have already been very generous, and we are 10 minutes over. We have a final question to go from Emma Lewell-Buck, who has been very patient indeed.

Q159 **Mrs Lewell-Buck:** Thank you very much, Chair. Good afternoon everyone. Minister, for anyone listening to today it is quite clear that there are concerns about this programme around costs, quality, timescales, noise and vibration. As you well know, we have serious problems time and again with defence procurement. The one thing I would like to know, and I think the public listening to this will want to know, is who is to blame for this mess? Who took their eye off the ball for us to end up here?

**Jeremy Quin:** With every procurement there are a large number of decisions that need to be made, and need to be made accurately. It is too early to tell where the problems lie. I would love to tell you, but I have confidence that we will find a solution very quickly and get on with it. Hopefully, that will be the case. I don't personally see us hitting FOC as early as 2025, although that may be possible.

There is every reason to hope that we can get this programme on track and get it delivered. In which case, the question will have less pith, but I am very aware that there are issues we have to get right. That is why I said at the outset that the perm sec and I are looking to have a review of decisions that have been made in the past on this. I don't want that to be lumbered on the incoming SRO, because they will have plenty of other things to focus on. But we do want to make certain that we have the history in terms of decisions that were made.

Let me be clear: this could all end well once we've got the diagnostics and seen if there is an engineering solution. We could get it into service. I would just pause for a minute before starting to throw lots of blame around, because it might just be that we can get this all sorted. In which case, I think this Committee will be delighted, as will the British Army and



## HOUSE OF COMMONS

the 4,000 or so employees who are, even today, working on getting this delivered.

Q160 **Mrs Lewell-Buck:** Thanks for that, but I think you just touched on something important there. You said that there are many people making many decisions. Is that not the problem? Who actually has oversight here? Who's in control? Because in any organisation there might be lots of people making lots of decisions, but there is always one person in control who knows what everyone else is doing. What went wrong here? How did the wheel fall off?

**Jeremy Quin:** As yet, we need to get through that analysis to make certain that there are fundamental issues and how quickly they will be resolved. It is not a good point now to start going through the history of the programme. I do think it is important that we have on all our complex programmes—I said at the outset that this is something we're going to be doing for all complex programmes, starting in the autumn—an SRO the bulk of whose time will be devoted to the delivery of those programmes. I think that will help to provide a single centre.

I am not going to say that there are clear areas where there are problems on this programme. That is partly why we're asking people to look back on the history to make certain we know where problems may have occurred, and so that we know to avoid them in future. But I am not going to shy away from the fact that we might actually get this working, and get it working well. We've got the Millbrook trials, and we need to get the diagnostics and to work out what can be done, and we will take it from there. The permanent secretary might well have other comments to add.

**David Williams:** I agree, Minister, that we need to let some of the reviews conclude, albeit quickly. I think what we will find is that there are a number of areas where we need to improve. We've touched on the combined demonstration and manufacture phase, which is not a normal approach, so I think there is a question about how we are geared up to deliver that unusual set of circumstances. To Mr Francois' point about ground truth, we really need to understand the extent to which there were opportunities to identify some of the particular challenges with noise and vibration earlier. There are already a range of improvements in place around defence acquisition, and they need a little time to bed in. I think it's not going to be a single factor, but a range of things that we will need to be better at in the future.

Q161 **Mrs Lewell-Buck:** What is the timescale for the review?

**David Williams:** I'm hoping that the health and safety review will report to the Minister and to me by the end of this month. We will then be launching the lessons-learned review over the summer. The principal piece of work, as the Minister has already set out, is to get the Millbrook trials restarted in a safe manner to allow us to get to the bottom of the noise and vibration issues to understand the scale of any engineering solution, so that we can take informed decisions this autumn on the date of initial



## HOUSE OF COMMONS

operating capability and our confidence in a deliverable path to full operating capability later in the decade.

It will be a phase: health and safety review very soon; and decisions on next steps on the programme in the autumn. We need to scope out how long the lessons learned review sensibly should take, but I am happy to update the Committee on that in due course.

Q162 **Mrs Lewell-Buck:** Thank you for that. Just one final question to the Minister. Obviously, you say that we haven't learned lessons yet because we are waiting for the report, but surely as Minister you are all over this or heavily involved in it. What are the few things that you have learned already that you wouldn't repeat in future contracts?

**Jeremy Quin:** Look, in terms of what I've learned, we have to make certain these things are set up for success. We have to make certain we are not trying to do something so exquisitely complicated that it takes years and years to constantly add to the platform. I am not saying that that necessarily happened here, but it is a general lesson that we need to recognise. I would rather have something that is 80% there and gets introduced with the ability to spiral the upgrade with vehicles that are fitted for, rather than necessarily fitted with, and then bring those into service. We should do that at pace. Those are the kinds of things that I think you will be seeing in the land industrial strategy—how we get modular vehicles that meet the threat and get introduced on a far, far faster timescale.

We need to recognise how complex these vehicles are, but we also need to recognise that we need to get on with it, with the recognition that spiral upgrades will follow. That has its own benefits. On land vehicles, we are in many ways starting from scratch with the establishment at Merthyr. We need a constant drumbeat of orders coming through on armoured vehicles, in terms of upgrades and new capabilities. That will help ensure that we cement a real skills, knowledge and design base that can really feed into our future capabilities. There are definitely things to learn and pick up on. Some of them are already announced in DSIS and some will be incorporated in the land industrial strategy, but I think there are clear lessons that are carried across from Ajax and indeed other programmes on how we can do things better.

**Mrs Lewell-Buck:** Thanks very much. I will hand over to you, Chair.

**Mr Francois:** This Committee and its predecessors, over 10 years, watched Warrior go horribly wrong—the same turret and the same gun. Our predecessors before that saw FRES go, and so on. If you do what you did on Warrior, you will stay in denial and carry on pouring good money after bad. In all seriousness, if you are having to give people steroid injections after having been in the vehicle, that tells you, Minister, everything you need to know. Rip the plaster off. Cancel it. Go for your liquidated damages and move on.

**Chair:** Right. There is advice from one Committee member.



## HOUSE OF COMMONS

Thank you very much indeed, Minister. There is a lot to take away from here. You yourself said that the command and control of this project is exceptionally exquisite in what it is trying to achieve. This is very complicated indeed, and that itself has brought in many challenges. One thing that we can take away from here—thank you for your honesty—is a willingness to conduct a review and make a sober assessment of whether you can genuinely go forward with this or whether it is time to draw a line. We look forward to the reports of the various studies that are being conducted in order to allow you to make that judgment. We have forever wars, which have been spoken about. We cannot have forever procurement projects. The final point is that the design and make aspect of this should never have happened, because that led to the purchase of the scale of vehicles that had to be sent back because there were problems with them.

Thank you very much indeed, not just to the Minister but to the permanent secretary and the generals, and indeed to General Dynamics, who have been very patient to stay. I suspect we will be revisiting this again, but for the moment that brings to a conclusion this Defence Committee hearing.