

"Joint Strike Fighter Requirements"

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Major General Bogdan: Good afternoon. I have the distinct pleasure of talking to you after lunch, strike one. I have the distinct pleasure of talking to you in a brand new forum that AFA has never used before, strike two. And I get to talk to you about the easiest program we have in DoD, strike three.

I'm not sure if you're here to find out about the Joint Strike Fighter program or to find out if the rumors about me ... are really true. So I'll try and answer both of those at least a little bit today.

I apologize that the slides are not very big. I'll attempt to not use those and talk to you.

I would imagine that there's a keen interest in hearing what I have to say about the program, having been on it all of five weeks, but sometimes it's good to hear an opinion from the outside, and I would consider myself someone from the outside at least a little bit longer. I will caution you that in five weeks I don't know as much about the program as I'd like to, so I may pull out my "get out of jail free" card if you ask me questions that are simply too hard. So we'll see.

Can you put up the next chart, please?

Like I said, I'm going to give you some facts about the program and give you an update. I'm also going to sprinkle that with some of my opinions from the last couple of weeks, hearing a lot coming into the program and now on the inside and seeing what's going on. Some of you know me as someone who likes to talk straight. You'll get straight talk from me today, you'll get straight talk from me on this program. Some of you may cringe at what I say, others may not. I'll just give you a warning about that.

That's what I'm going to talk about. Next slide, please.

The first thing that I thought I knew about the Joint Strike Fighter program was that it was a single program with three variants. Here's what I want to tell you. It's not. It's three separate airplane programs that have common avionics and a common engine. This program is so incredibly complex variant to variant

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that to label it a single program and think of it that way sometimes does it an injustice.

So what I'd ask you to do at times when we're looking at how these programs perform, remember that it's just not a single program. It's really three airplane programs built into one. That makes it hard sometimes. We'll talk a little bit more about that.

Second, the construct of this program with three services, eight partners, two FMS customers today, many more knocking on the door, I would tell you that if you took a piece of paper, a blank piece of paper and said let me see how I can build the most complex program in the Department of Defense, I don't think you could have done a better job than what we have today relative to our partners, relative to FMS, and the services. It's just a hard way to do business. It simply is. It's hard enough to get one service to answer questions about requirements. Imagine three services, eight partners, and two FMS customers. So that is not an excuse for where the program's been and it's not going to be an excuse for where the program's going. It is just a reality that we have an awful lot of people that are trying to take care of in this program. There's an awful lot of software in this program. It scares the heck out of me.

I couldn't tell you what an F-22 lines of code is. I know what it was from my last program. But I can tell you when you're staring ten million lines of code in the face on just the airplane alone, and another ten million almost off on the ground, that should scare anybody. The software is simply not easy to do. And this airplane is a flying software computer. As simple as that. And all the systems on the ground that hook up to it, they're also software intensive. So it gives me pause when I think about how much we depend on the software on this program.

We also have a lot of stakeholders. And quite frankly, sometimes stakeholders despite their best intentions can derail your program. I've seen it happen before. I'm not going to let it happen on this program. So what we have to do is we have to consciously understand that there are people in this program that have a vested interest. A vested interest doesn't mean you have a responsibility or the accountability when things go wrong. We have to separate those two sometimes. That just makes it go around a little bit harder, also.

Finally the greatest of all sins in the Joint Strike Fighter -- concurrence.

The first thing I'll tell you about it is, it is what it is. We can't go back and rewrite history. We can't go back and change decisions that were previously made. But what I will tell

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you is, where we are today with concurrency makes this program so much harder than it needs to be. What I'm talking about is we're in the middle of development, and at the same time we're producing airplanes at a pretty good clip. At the same time we're fielding airplanes at operational bases. At the same time we're spinning up the training program. And at the same time all of that's going on, we're trying to stand up the depots for long-term sustainment. What program would you ever put on paper to do all those things at one time? You wouldn't do it. You wouldn't do it because it makes life so hard but we are where we are with it, so we have to deal with it. I can tell you, and you'll see later on, one of the best ways to deal is concurrency is to understand how all the pieces are connected and make sure you make decisions in a way that you know how all the pieces are affected by those decisions. That's a leadership issue and that's a management issue, and that's something I have to take on with Lockheed Martin.

This concurrency is just a way of life for us. Okay. There are things we can do that can minimize the risk of concurrency and there are things we can do that can minimize the impact of it but it's not going to go away. We're too far along in the program. There's not anything we can do about it, so it's just a matter of having to deal with a difficult situation.

Next slide, please.

What's been going on for the last two years under Admiral Venlet's leadership? The way I use an analogy here, that is we have this gigantic aircraft carrier called the Joint Strike Fighter program. And it was sailing, and quite frankly it was sailing and it was going to run aground. Admiral Venlet and his team with Lockheed Martin and the help of OSD have steered that ship another way. It took them two years to steer that ship away from the shoals so it won't go aground. Now that ship is pointing out into the blue ocean and it's my job to make sure that it stays that way. Okay?

How did they do that? Well, the first thing they did was they got a little help from this law called Nunn-McCurdy which said you have to go back and figure out if you really want this program. Then after that we decided well, if we do still want this program how can we structure it to be successful? Okay? And for the last two years the Admiral and his team have done that. They have put what I would see to be a plan in place that is executable. Not without risk, not without a lot of hard work, but at least we have a plan in place today, and I can stand up here and tell you it's potentially achievable. I'm not sure I could have told you that three years ago before the Nunn-McCurdy. That's what's been going on for the last two years.

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We went through the Milestone B approval again. We went through all the OSD wickets to get the program back up and running. What I can tell you today is at least we can see the light at the end of the tunnel, and at least we have reasonable confidence that with what we have in place today, we can get there. I'm not sure I could have said that a few years ago.

One of the key points about Admiral Venlet's leadership over the last two years in steering that ship was we need to be realistic about what we can and can't get done, and we need to be realistic about the timelines we have in our master plans, how long it's really going to take our testing, what our production profiles should look like, because it does us no good to set the bar up here when everybody knows we can't reach it and then when you don't reach it you get beat up for it. So the Admiral went out and said we're going to put a realistic plan in place. In my five weeks here I would tell you not without some risk and not without some hard work and not without our industry partners performing, we can get there. We can. That's something, like I said, that bodes well for the program today.

We did build in some margin. I can tell you that the margin we built in in terms of time and money begins to erode even today. For lots of different reasons, and we can get into that later. But there was some margin built in there so we were not pie in the sky, setting the bar up here on what we would call a success-oriented schedule. I love those kind of words. That means you don't expect anything to go wrong. And if folks don't think things are going to go wrong in the next two to five years on this development program, I've got to tell you otherwise. We're going to find things that we didn't know about and we're going to have to deal with them. At least the schedule now compensates for some of that.

Next chart.

What I want to do now is I want to go over a couple of things and give you the reasons why I think the program is at a good point in moving forward. Not a great point, but a good point.

First, our testing. In 2012 [we] had a plan on testing. Now having said that, we've got to take a look at what we're measuring. Right now the real, what we're measuring in the test program are test points, flight hours and test sorties. I would tell you that is not the best measurement in a test program. We need to rework the enterprise so that we can start measuring what's really important in test. I can tell you, it's not the test points, it's not test hours, it's not test flights. It's more capability based and it's different than that.

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But having said that, the only data I have here today since we haven't undergone that transformation yet are test points, test hours and sorties. And from what you've seen in 2012, we're ahead of the plan. That's a good thing.

We did have some major accomplishments this year also, and you can see those up on the slides if you can read them. We finished the first full-flight testing of the Air Force variant, all 8,000 hours. We've dropped our first weapon. We've continued to expand the envelope of getting ready for live weapons releases. We've completed all the air starts on both the A and the B models and we're getting ready for complicated high angle-of-attack testing. That's coming in the future.

So my perspective on the test program. We're making progress. We're measuring that progress. I'm not sure we're measuring the right progress, but the test program is starting to create some momentum and that's a good thing. Because we have to go through test to figure out what we don't know. A dollar spent in testing is usually a dollar spent on bad news. So I expect that we're going to find some more bad news as we move along. If we didn't, I'm not sure we'd consider ourselves doing adequate testing.

Now having said that, we have some tough testing ahead of us. Like I said high angle-of-attack testing, weapons testing, ship-board work on both the B and the C models, and probably the most difficult, and when I use the word difficult I mean that testing which probably poses the greatest risk to our schedule is probably mission systems testing. You take all the sensors on here, try and tie them together. Once you tie them together you try and hook them up to weapons and the pilot in the loop is seeing he can perform the mission. That in and of itself is a big deal and hard testing. So we have a row to hoe there.

I would tell you that our fundamentals when it comes to testing today in terms of flight sorties and getting airplanes in the air and gathering data is good. We're going to need that. We're going to need that when things start getting rough. The fundamentals are there. We have a lot of tough testing ahead of us, though.

Next slide.

Another one of those issues when it comes to concurrency.

We have airplanes. In fact we have 19 airplanes down at Eglin that are training pilots today. Training maintainers today. That's an astounding thing. It's an astounding thing because quite frankly we're only about a third of the way through the flight test program. So you have operators out there in the

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Marine Corps and the Air Force, and soon our international partners with the UK and the Dutch coming down very shortly, who are flying this airplane every day. They're not flying complex missions, they are flying training missions that have a lot of operational restrictions on them but they're flying the airplane and it's not in a test environment. That's a good thing. That's a good thing because we're learning a lot about the airplane. I believe we have the appropriate processes in place to learn about the airplane in a safe way that we get our training and we get that information back into the program so that we can improve it as we move along.

As you know, the Air Force is conducting its operational utility evaluation as we speak, the purpose of which is to inform the AETC commander if the airplane is ready to go into basically full-up training for the Air Force. I think that's a good thing to do. As an acquisition guy and a test guy, I would tell you every opportunity you get to have an independent tester or independent engineer take a look at what you're doing to inform you and help you make decisions is a good thing. We shouldn't be afraid of those kinds of things as long as you can do them safely and effectively, and I think the Air Force is proving today that they can do that and we can do it safely and effectively and it's going to help us in the interim, in the end game, excuse me.

In the future, like I said, we're going to be ramping up pilot training, maintenance training down there for all three services and for our partners. That is a big, big part of this program as we start to move airplanes into the field, to make sure that all the other things that go along with the airplane including the pilots, the maintainers, and the support community, it's all up to speed and ready to go because it does you no good to have the airplane out in the field sitting in a hangar. We'll talk a little bit more about that.

Next.

Production. In the last two years the department, as well as our partners, have taken production airplanes that we had planned to produce and moved them out of the fight. In the short term you would look at it and say hmm, that's going to increase the unit cost of the airplane etc... But let me give you the alternative of not doing it. The alternative of not doing that is continuing to test airplanes and finding things out that have to be changed, while at the same time you're buying airplanes and now you can't fly because they need those fixes. And you've got to know it costs money in the end game to make those fixes. Probably more than it would cost you to put them in production.

So for my personal opinion, I think the Department of Defense and their partners were probably pretty smart in slowing

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down that ramp-up of production until we can get a little more testing and understanding under our belt. Personal opinion. Call it a professional opinion if you want.

I would also tell you that if the development program does not proceed at pace, that would be a very good question for me. Why would I want to continue to buy airplanes that I can't fly? It's just a fundamental question we have to think about. And how much would it cost if you do continue to buy those airplanes to retrofit them later? There are lots and lots of numbers floating around out there. We've got to think through some of that. We've really got to think through some of that.

Having said all that I would tell you that Lockheed Martin is showing some improvement in their production facility. Is it coming fast enough for us? No. Are they showing some good improvement? Yes. Would we expect them to be a little ahead of the learning curve, being on their fifth lot of airplanes? Yes. But we are where we are. What I can tell you is I am seeing some glimmers of hope in Lockheed Martin's production and their facility that will help us down the road. Costs are coming down. Are they coming down as fast as we want them to? No. But they're coming down. I would tell you that over time it will mean we're going to get this reduction thing done pretty well.

Now let's add some more complexity to that thought. We have foreign production of the airplane coming into play. We're going to be ramping up rapidly over the next five to ten years. So there are a lot of things that although I believe that production is getting better, it will add more complexity that will keep trying us in terms of getting production right in the next five to ten years.

ALIS. One of my favorite topics. Everybody knows ALIS stands for Autonomic Logistics Information System. The only time I ever used the word "autonomic" is when I was in college and I was in a biology class. I think they told me that my breathing was autonomic. That meant that I didn't have to think about breathing.

Let me tell you, if we think that's what this logistics system is, that we just flip a switch and don't have to think about it, that is the wrong word to be using. This is a heck of a complex system.

Now the vision for it in the end game is pretty darn good, but it's a very very complicated logistics system and it does a whole lot more than logistics. I'll talk about that later. But we're seeing slow, steady progress there. All I can tell you about ALIS is, if we don't get ALIS right, we don't fly

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airplanes. It's that simple. It is that critical to this program.

Next slide.

Those are some of the things that in my first five weeks I think are pretty good. We can improve on them, but I think production, flight test, those kinds of things are getting better.

Let's talk about what keeps me up at night on the joint-strike fighter program.

The first one, and it's the gorilla in the room for everybody, at least for me, is software. We talked about it. The airplane has ten million lines of code on it. We've broken software and capability up into a number of blocks of capability. Right now we're right in the middle of that move. We're delivering Block 2A and we're beginning to spin up for Block 2B to be followed with Block 3, and Block 3 is that final where we get all the warfighting capability.

Here's what I can tell you. Although we're doing okay in developing Block 2 software, we're a little bit behind. If you want a number to put on it, I'd put on it in the last two years the department has fallen behind 90 to 120 days. Now, take that with a grain of salt because there are a million people out there who will give you a million different estimates on where we are on software. Because it really depends on what assumptions you make and what data you were using in the past, and how you expect Lockheed Martin to perform. Suffice it to say we're a little bit behind on 2A.

Having said that, when we look forward to Block 3 of the software, what gives me pause is that it's very very complex. That's where we do all the integration of all the pieces and parts of the software and the mission systems on the airplane. So the level of complexity in Block 3 goes up a notch. If you took a look and said I'm a little behind on Block 2, Block 3 is even harder. Oh, the sky is falling in. Not necessarily. I say not necessarily because Lockheed Martin to their credit, the government to our credit, recognized that software is a big big deal, and over the last six months or so we have put a concerted effort into improving both the government's oversight and Lockheed Martin's processes.

So one thing that is very very good in my opinion is we have used the expertise of outside, independent reviewers at the NavAir and the Life Cycle Management Center folks at Wright-Patterson, to share all of our design reviews for our software. Okay? That's a really good thing. Those folks are very

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experienced. They've seen a lot of airplanes and a lot of software programs. To have them co-chairing all the design reviews of our software is a very good thing.

The other thing the government has done and Lockheed Martin has been a good teammate here, is whenever we move anything out of block of software, whether it's from 2A to 2B, to 2B to the 3I, 3F, that is going to be done not under a veil. It is going to be transparent. And oh by the way, the government's going to decide what to move. Unfortunately I will tell you that wasn't the way it was in the past. It is the way it's going to be in the future. So Lockheed Martin and the Air Force as partners have recognized that software is a huge risk and we've got to do business a little differently.

Lockheed Martin's made some tactical improvements in the way they are producing their software. [inaudible] work stations, better regression testing, better metrics. I would withhold judgment as to whether that's going to make a huge difference or not. I'm hopeful that it will and I've seen some glimmers of hope that that is getting better, but until we have some time to see that really play out in Block 2B and beyond, we'll withhold judgment as to whether or not it's a touchdown or not. I'm encouraged, but we have some more time to take a look at that.

Next slide.

The helmet. Just like ALIS, you cannot go to war and you cannot fight with this airplane unless you have a helmet that works. Okay? Today we have a helmet that works in a very rudimentary way. There are a number of issues with the helmet. We recognize what those issues are and we have a plan in place to fix those.

Here's the problem. The problem is if the Marine Corps truly intends on declaring IOC in 2015 with Block 2 via software, not all of those fixes will be ready by then. So we are left with a question and that question is in its configuration today, is the helmet good enough to perform those basic warfighting missions? Unfortunately, we don't have a lot of test data to get us that answer.

So what the Admiral has done and what Lockheed Martin and the government team have been working on and we're doing it as we speak, we're taking a single airplane and dedicating it to do nothing but helmet testing. We've started that. We've got the test plans built. We've got the airplane identified. We're going to be doing that at Pax River. I would tell you in the next 60-90 days we're going to gather as much information about that helmet as we can to answer two fundamental questions. One, how good or bad is the helmet today? What can we really do with

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it in terms of night flying, flying in weather, our basic warfighting missions are too big.

Second, is the helmet viable long term if we make those fixes? If it's not, then we have a big problem. You don't fly this airplane without a helmet.

As a risk reduction method we're taking a look at a second helmet built by BAE and that's because you never want to go in with all our eggs in one basket. The helmet's got a problem, we know how to fix it. Are we sure it's all going to get fixed? No, not necessarily. So you want to have a backup plan. So we, the government, chose to create a backup plan. With the BAE helmet, we're looking to see if that's going to be enough backup.

Next slide.

We already talked a little bit about ALIS. ALIS is pervasive across Joint Strike Fighter. What I mean by that is you don't mission plan without it, you don't maintenance debrief without it, you don't pull your training record without it. You don't make sure the airplane's code one ready to go without it. You don't order pieces and parts from it without it. So in the end game it was so crucial operating this airplane that it's frightening a little bit. If it doesn't work, this airplane doesn't work.

ALIS itself can be its own ACAT 1D program in the Department of Defense. It could be very easily. It's that important and we're dedicating that much effort.

Right now we're in the middle of figuring out is the next load of software, we call it ALIS 1.03, going to work? We had some problems leading up to this point. One of the big problems was security. You can imagine a system that has all that information about a Joint Strike Fighter in it. What parts do you need fixed? What pilots are qualified? What maintainers are qualified? What mission plan is going? You never [inaudible] that information. We did some testing and found out we had some vulnerabilities. To Lockheed's credit and to our credit we took that seriously. We did a pause on ALIS. We went back and fixed those vulnerabilities. We're in the end game of that where we're testing 1.03 at Edwards now for its functionality. And we're in the end game of doing that security vulnerability testing.

I believe we're on plan by the end of November to have that resolved. I'm fairly confident we're going to get there, and that's really really important for a number of reasons.

One, I believe the Marine Corps is intending on putting airplanes at Yuma in November. If we don't get ALIS 1.03 out

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there for them they're going to fly those airplanes in there and they're going to be in the hangar for a while, and that's tragic. That's just a tragedy. So we can't let that happen.

Two, we've got a bunch of airplanes sitting down at Lockheed Martin's plant today that we have not taken delivery of and paid Lockheed the last piece of the money to buy those airplanes because they can't fly unless ALIS 1.03 works. So there's a lot riding on getting ALIS 1.03 right for a lot of people.

Next.

You can't talk Joint Strike Fighter unless you talk money. So this is a little more about me and my philosophy than the program itself, but I'll make a statement here that I plan on sticking to. There is no more money or no more time in the development of this program. That is it. The Admiral got a great gift from the Department of Defense at that milestone meeting and that great gift was billions of dollars more and about 30-plus months more of [SDD]. That was a great gift the department gave this program. We will not go back and ask for any more. It's as simple as that.

So one of the tasks he and I have is to create culture within this enterprise, and I'm talking stakeholders, Lockheed Martin, subs, and with JPO. This is fundamentally a fixed price development program. There's no more money and there's no more time, so we're going to have to make trades, we're going to have to do this in a disciplined way. That's all I'll say about that for now.

We already talked about production. I see a glimmer of hope that production's getting better. I haven't seen that translate into dollar savings that I'd like to see on this program yet, so there's the connection. If you're getting better in production, you ought to be getting better investment for the taxpayer. I'm going to want to see that here real soon from our partners, both on the engine side and on the aircraft side. I believe they're right on the edge of getting really, really good at this. Now I want to see them take that and translate it into lower costs in production on this airplane.

Finally the long term sustained cost and strategy. We have a lot of estimates out there in the billions and trillions of dollars. Here's what I will tell you about that, my own personal opinion.

Those numbers are so sensitive to the assumptions that you make that I'm not sure they can inform any of us today about what to do and what not to do. Okay? So we have on one side everybody woe is me, all the world is falling in, it's going to

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cost a gazillion dollars. Then we have other folks that say no, it's not, it's only going to be this much more than the legacy airplanes.

Here's what I will tell you. I'm not necessarily listening to either one of those. I'm looking at what we have in front of us today for the strategy on how we're going to long term sustain this airplane and it's wrong. It needs to be changed. It needs to be changed in a number of fundamental ways. One fundamental way is competition is a really good thing. We've got to inject some competition into the long term sustainment of this program.

Two, there's a lot of things that the government and our partners can do organically. It works pretty darn well today. We've got to fold that into our long range plans. Competition, organic. There are some business arrangements we can make out there that are better for both the long term contractors on this program and us. We just have to think really hard. There are some [inaudible] [wings] out there in that respect. So I'm not worried about the folks that say it's going to cost the same as a legacy airplane. I'm not worried about people that say it's going to cost a katrillion times more than legacy airplanes. What I will tell you is looking today, the basic strategy on the way we're going to sustain this airplane has got to make some fundamental changes to it.

Will that help us? You bet.

Next slide.

I'm almost done.

One of the things I've learned over 20-plus years in acquisition is the more complex the program gets, the more you have to fall back to your fundamentals. The basic blocking and tackling of acquisition. And like I said before, there is not a more complex program on the planet. We did it to ourselves a little bit. We did it because we had this grand vision. Whatever the reasons, this program is hugely complex and in order to manage a hugely complex program you need to make sure that your basic fundamentals of acquisition are in place. That means knowing where every penny is, knowing who every person on the program is and what they're doing, know where every pencil is. What I mean by pencil is all the equipment. We've got to have that kind of discipline in a complex program like this. And it's on both sides, by the way. It's on both sides. The government and industry side.

Realism. We already talked a little about Admiral Venlet and how he has instilled at least in our planning process realism. That has to continue. It absolutely has to continue.

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We have to be realistic about what we put down on paper and the promises we make. We're not going to pad things. But we're also not going to tell people we can achieve things that are basically unachievable. So we have to have that ounce of realism in what we're doing.

Transparency. The Admiral was big on that. I'm huge on that. You should never be afraid to ask me why I make a decision because I should be able to tell you. If I can't, I better rethink about the decision that I made. Some things I don't talk about publicly and you have to understand that, but when it comes to this program, the decisions that I make, the decisions that the JPO makes need to be transparent to everybody and that's a promise I'll uphold.

Discipline and stability. One of the things in the first five weeks that really shook me a little bit about this program is the amount of change we allow, that's the verb I want to use, the amount of change we allow to occur in this program. Change in any acquisition program is destabilizing and unsettling. You better know why you want to change things and it better be for a darn good reason. If it's not for a darn good reason, then you don't do it.

My sense is that we have to get a handle on the things we're changing on this program and why we're doing it. I'll just leave it at that.

That requires discipline on a lot of people's part, by the way, on all sides. Stakeholders. Sometimes you stakeholders are not going to like me because I'm going to tell you no. Sometimes Lockheed Martin's not going to like me because I'm going to tell them no. My JPO's not going to like me sometimes because I'm going to tell Lockheed Martin yes. Enough about that.

Second from the last bullet. Accountability. One of my favorite words when we talk about acquisition. I'm talking about accountability across the board with the entire enterprise. So I'm not going to pick on Lockheed Martin here and say by God, the way to get the best outcomes on this program is to hold Lockheed Martin accountable. Yes. That's one. But there are other accountabilities we need to talk about.

Stakeholders have to be accountable to this program. You can't drive instability and change on this program on a whim. We have to worry about meeting your needs and not your wants.

Another element of accountability. We have to hold our JPO accountable. When we make promises to Lockheed Martin or we make promises to the department or we make promises to our stakeholders, we have to be held accountable to the same standard

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that I am going to hold Lockheed Martin to. Once everybody figures that out in the system, I personally believe you can take complex things and they can be a little bit smoother and a little bit easier. It remains to be seen if that's going to be the case, but I'm sure going to die trying.

Finally, trust. Here comes a little bit of straight talk. I've been on a lot of programs in the acquisition world. I would tell you that the relationship between Lockheed Martin and the JPO and our stakeholders is the worst I've ever seen. The worst I have ever seen. I've been in some bad ones. Okay? We will not succeed on this program if we don't get past that. I guarantee you, we will not succeed on this program until we get past that. That is a cultural thing. It is a cultural thing that Lockheed Martin has to work on. It's a cultural thing that the JPO has to work on. It's a cultural thing that the department has to work on. We have to find a better place to be in this relationship. We have to.

It should not take 10, 11 or 12 months to negotiate a contract with someone we've been doing business with for 11 years. There's something fundamentally wrong with that. We've got to fix it. We've got to fix it.

If we don't fix that then all the other things we just talked about probably aren't going to work.

I would tell you that I think that's the biggest threat to this program.

Next slide.

Take the program construct and the concurrency we have, put those together and boy, you have got one monster on your hands. It is a very complicated program.

We have a realistic plan that I believe given the right attention, given the right performance from my Lockheed Martin partners and the JPO and the stakeholders, it's a plan that's achievable. Not without risk. But it's achievable.

I see some progress. I'm happy at the rate at which we are testing. We're doing that safely and we're building some momentum. I see some glimmers of hope in the production. I think those are going to catch on and we'll start to reap those benefits in the future.

We're training guys now, we're training maintainers now and that has to keep going. We have to do that safely and I think we are. We're learning a lot about the airplane doing that and we'll just have to deal with all of the complications that come

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with flying and training airplanes at the same time you're developing and producing airplanes. It's just a fact of life. There are no-kidding challenges. Software, ALIS, helmet, and my last bullet which I already told you about, the relationship between the enterprise and industry.

We have to think long term in terms of how we can figure out a way to make this airplane affordable. I think there are some strategies we can explore doing that. We have to run this enterprise with discipline across the board. We have to be transparent to everybody in the process. We have to hold each other accountable. It's not a one-way street. It's a multi-variant street where we have to hold each other accountable.

If we do that, we've got a shot at getting this done. We've got a shot. It will not be easy.

I think I'm done. I'll take questions.

By the way, I've got ten minutes' worth of questions here because they've got someone else coming in. I think what they told me was they're going to scoot me to the other side of those curtains so folks can ask more questions.

Question: DOT&E opposes the JSF test and evaluation plan. What course of action are you following to reach an agreement with DOT&E?

Major General Bogdan: That's a great question. I'll answer it at the top level. No program can ever move forward when there's conflict without compromise. So we're working with the DOT&E folks to figure out where the win/win is in this for all of us. They have suggested that we do some things, testing most certainly, that I personally don't disagree with nor does the program. It's just a matter of where and when and who pays for it, quite frankly.

You never get through a program that has conflict without some form of compromise.

Question: One final question. One of the issues linked to the software package of the F-35 is the trouble of integrated all-mission components into the weapon system. How do you foresee the integration of future weapon systems into the aircraft in 10 or 15 years from now? Will the complexity of the software and its integrated nature be a major problem?

Major General Bogdan: That's a very good question. Here's what I will tell you five weeks into the program. I believe that if we can get the integration and the fusion piece correct for Block 3 warfighting capability, and we will have an understanding

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of architecture such that new weapons and new weapon systems could come on-line I won't say easily, but I will say readily, I think that's where we're going with the architecture of the mission system software. It will accommodate other weapons.

Having said that, it's a stealthy airplane. You've got to fit most of what you carry into combat in the weapons bay. So you've got some constraints there. Unless you decide that you don't worry too much about the LO or want to hang things on the wings, and then there's a future capability to do that too.

I'll leave it with, I think the architecture will accommodate that.

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