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## The Coming of the CMV-22B to the Fleet: Impacts and Opportunities



HX 21 CV 22 Osprey flies with YX 20 C 2 Greyhound. USN Photo by Erik Hildebrandt / RELEASED

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<b><u>PREPARING FOR THE US NAVY’S TRANSITION FROM THE C2 TO THE CMV-22B: MEETING THE CHALLENGE</u></b>	<b><u>3</u></b>
<b><u>CMV-22B IS ON ITS WAY: VISITING AMARILLO</u></b>	<b><u>8</u></b>
<b><u>FROM THE INTEGRATED TO THE INTEGRATABLE AIR WING: THE TRANSFORMATION OF NAVAL AVIATION</u></b>	<b><u>12</u></b>
<b><u>THE NEXT PHASE OF DEVELOPMENT FOR OSPREY NATION: FROM REACH TO WORKING EFFECTIVELY IN AN INTEGRATED DISTRIBUTED FORCE</u></b>	<b><u>19</u></b>
<b><u>THE EVOLVING ROLE OF ROTARY WING PLATFORMS IN THE INTEGRATABLE CARRIER AIR WING</u></b>	<b><u>23</u></b>

# Preparing for the US Navy's Transition from the C2 to the CMV-22B: Meeting the Challenge

04/16/2020

On February 7, 2020, the US Navy officially received its first CMV-22B Osprey, the replacement for its venerable C-2 Greyhound aircraft.

I attended the ceremony held at Amarillo, Texas and had a chance to talk with a number of the participants before and after the ceremony.

Having followed the Osprey since 2007 and observed its impact on the USMC, it was never a simple case of the MV-22 replacing the CH-46 'Phrog' and its mission.

The tiltrotor is not the same in any real sense as a traditional rotorcraft, and the increased range and speed of the Osprey and its unique operating envelope has proven to be a significant capability for the Marine Corps which they have been able to leverage to transform their core operations.

Now the US Navy will be transitioning from a fixed-wing aircraft configured to operate with the cats and traps system onboard an aircraft carrier (the C-2) to an aircraft (the Osprey), which is not limited by that system will not operate in any way like a C-2.

It is undoubtedly going to also be a significant opportunity for the Navy to manage the transition and to understand fully how to make the most of the new aircraft's capabilities to conduct Airborne Logistics from the Sea Base in new and innovative ways.

There is another major aspect or indeed opportunity, that has nothing to do with the COD (Carrier On-board Delivery) mission.

The Osprey has proven capable of a wide range of operations, from Special Forces transport to performing a Medical Evacuation off of a submarine, but the US Navy is not buying it for those missions.

Yet, given the demanding strategic environment in which the fleet is operating and going to operate, it is difficult to believe that the Navy will not wish broaden the envelope of what the Osprey can do for the fleet.

To do so will lead inevitably to the demand to buy more than a simple COD replacement would dictate.

Because the Osprey is a multi-service, and multi-national asset, there will be opportunities as well to leverage collaborative investment as well.

This has not been possible with the C-2 because it was and is a uniquely Navy plane.

**How then might the Navy use the aircraft beyond the classic C-2 ops rhythm?**

**And how might the Navy take advantage of a broader investment or production set of opportunities posed by multi-service and multinational partners?**

What is clear is that the challenging path of transition which the Marine Corps took from CH-46 to MV-22 will not be as difficult for the Navy.

They can already build on the experience of the Marine Corps.

**Nonetheless, it is clear that there will be unique aspects of its fleet introduction.**

During my visit to Amarillo in February 2020, I had a chance to talk with a retired Navy officer who was involved throughout his career with the C-2 as well as becoming involved in the process of working the C-2 replacement effort.



Currently, CAPT (ret.) Sean McDermott is a commercial airline pilot who served in the US Navy for 26 years. He was involved with the C-2 during the majority of his career, starting as a Greyhound pilot and eventually commanding one of the Navy's two fleet logistics squadrons.

In the final years of his service, McDermott was involved in working through options for the Navy as they considered C-2 replacements, with an eventual Osprey selection.

In our discussion, McDermott highlighted a key point which logistics pilots are keen to underscore: "You don't care about logistics until you don't have the supplies you need at the time you want them."

He noted that when he became part of the C-2 community, there were two squadrons, based at three locations.

One, VRC-40 'Rawhides' was located on the East Coast at Norfolk, VA, and the second, VRC-30, 'Providers', on the West Coast in San Diego California. There is also a permanently forward-deployed detachment of VRC-30 based in Iwakuni Japan.

Both squadrons fall under Airborne Command & Control and Logistics Wing (ACCLW) headquartered in Point Mugu, CA. The wing was traditionally led by officers with an E-2 Hawkeye background.

This meant that there was little opportunity for C-2 pilots to lead the community beyond the possibility of becoming a squadron commander or O-5 (Commander) rank, vice O-6 (Captain/Commodore) rank.

Lacking the upward mobility, post-squadron command has made it more difficult for the C-2 leadership to become involved in future planning and to be able to be in the best position their assets for more robust mission opportunities.

As a story [published in 2010](#) in the *Virginian Pilot* newspaper noted for the 50<sup>th</sup> anniversary of VRC-40:

*McDermott and the other members of his squadron, known as the Rawhides, aren't used to being the center of attention. In naval aviation, glory usually goes to the fighter pilots and their jets, not to those who deliver mail, spare parts and passengers.*

*"We're a light switch. We're the Internet.*

*They expect us to be there all the time," McDermott said.*

*"The only time we're visible is when we're not there."*

McDermott underscored the challenges facing C-2 leaders getting into a position to shape the future of their mission within the overall world of carrier aviation.

"In general, there is no upward mobility for C-2 COs.

"In general, the preponderance of the leadership of the wing are E-2 Naval Flight Officers.

"This means that you've got somebody who's your boss who's never flown your plane, never done your mission, doesn't have a complete understanding of the challenges that are unique to deploying detachments across the planet.

"They had about 140 people in their squadron when they were commanding officers and a C-2 squadron is 400 people."

McDermott noted that one of the encouraging signs with the CMV-22B transition is that a new Wing, COMVRMWING has been stood up, and its Commodore who is in charge of the Osprey team now being charged to take over the COD mission.

This CMV-22 wing should provide a more dedicated voice to implement new ideas for airborne logistics operations as well as exploring how the aircraft could be used to support other missions for the Navy in a distributed maritime environment.

We discussed at length his experience with the challenges of getting the Osprey engaged with the Navy fleet and eventually on to the carrier for a fleet battle experiment as well as in support of humanitarian assistance missions.

He was also involved in the efforts to deploy Ospreys onto foreign ships, and he worked closely with the Marine experimental squadron VMX-22 and [Col. Michael Orr](#), who we interviewed often during the time frame when the Osprey transition was accelerating, to leverage the Marine's experience with the aircraft to shepherd Navy interest.

On the cover of our book, *Rebuilding American Military Power In The Pacific*, we chose a photo of Col. Orr landing on the USS *George H.W. Bush*.

McDermott was on that carrier during those trials and highlighted how challenging it was to get support to land the Ospreys onboard the large deck carriers.

The Marine aviation leadership created VMX-22 to lead the way forward, first with Ospreys and preparing the way for the next round of aviation innovation.

Because they worked under strong leadership, they could partner with a Navy leader like McDermott to create an opportunity for the Osprey to become a large deck carrier asset.

As McDermott noted about Col. Orr: "I have a lot of respect for Mike, clearly a leader who is willing to support change and innovation."

But as the trials evolved, there were opportunities to demonstrate how an Osprey could do things a C-2 never could do, given the flexibility of the aircraft and its speed and range.

**He provided several examples of this.**

One involved when Orr's group arrived back in Norfolk on an Osprey, and when taxiing, out came a chief petty officer blocking their way. They stopped and the chief said that there was an urgent need to get a part to an F/A-18 Hornet so that it can fly off of the carrier prior to getting to port.

The ship was pulling in the next day, and if they did not get the aircraft off of the ship, the aircraft would need to be craned off the ship while in port, not something the Navy likes to do.

The catapults have already been shut down on the ship and were not available.

Obviously, this was not a barrier for the Osprey which flew to the ship, delivered the part and left within 90 seconds from the ship.

McDermott recalled: "The Air Boss on the carrier was an E-2 guy and he underscored, "Let's see a COD do that!"

**We concluded our discussion by focusing upon the potential impact of the multi-mission Osprey to the fleet.**

McDermott put it this way: "With the C-2 we did one thing – Carrier On-board Delivery.

"With the Osprey, Combatant Commanders already know the multi-mission capability of the V-22 and will be tempted to utilize them for a variety of other missions.

"This is not something that would happen with a C-2. Carrier leadership will eventually struggle to fence off their logistics assets from outside tasking."

In other words, there is an anticipated operational demand that they will want to leverage fully the new versatile capabilities of the Osprey. He noted that with the new platform being introduced to carrier aviation, it will be possible to leverage it to shape a greater range of capabilities for the COD asset.

He noted that as the Marines began to get comfortable with the MV-22, they shaped the unique Special Purpose Marine Air-Ground Task Force (SP-MAGTF), which has become a highly demanded asset. He argued that such innovation was certainly possible for the Navy as it worked with its new COD aircraft.

One area he noted were forward deployed locations that would benefit like operations in Bahrain. Ospreys deployed to these locations could not only better support logistics but would also have the flexibility to support other mission sets for combatant commanders.

"With the coming of the new platform into the fleet, one innovation which might be considered is how to use the new Navy Osprey as part of a broader sustainment effort encompassing Marine Corps and Navy Ospreys.

"It also is an area where the multi-mission capabilities of the aircraft for the Navy can be explored as well.

"In other words, where the Marines leveraged their Ospreys to build and equip SP-MAGTF, perhaps the US Navy can leverage the Bahrain anchor from which to build regional sustainment and explore ways to build out the multi-mission capabilities it would want from its CMV-22s."

This clearly might require the Navy to consider from the outset ways to ramp up the buy and to prepare for ways in which the fleet commanders will employ it to leverage fully the aircraft capabilities, and, at the very least, utilizing its capability to provide improved logistics to Navy and Maritime Sealift Command ships.

# CMV-22B is on Its Way: Visiting Amarillo

02/10/2020

Last Friday, the US Navy and the Bell-Boeing team hosted an event in which the CMV-22B was rolled out.

The ceremonial delivery was held on February 7, 2020, but the week before the first aircraft had landed at Pax River for its final round of testing before going to the fleet next week.

The first CMV-22B deployment is less than a year from the initial delivery of the aircraft which means that from the 2015 initial funding for design work to the 2018 production contract, the aircraft will be operational within six years from contract to delivery.



Obviously, this means that the Navy has leveraged the many years of experience of the USMC and the USAF in operating, maintaining and upgrading the aircraft, to leverage a common asset, to get a new combat capability.

The aircraft is replacing the venerable C2 aircraft in the carrier onboard delivery role, but from the outset is designed to provide a wider set of roles, including search and rescue and support for Naval Special Warfare.

**But this is just the beginning.**

In a visit to San Diego the week before the ceremony, I had a chance to sit down with Vice Admiral Miller, the Navy's Air Boss, to discuss the way ahead with naval aviation. The US Navy over the next decade will reshape its carrier air wing with the introduction of a number of new platforms. If one lists the initial operating capabilities of each of these new platforms, and looked at their introduction sequentially, the air wing of the future would be viewed in additive terms – what has been added and what has been subtracted and the sum of these activities would be the carrier air wing of the future.

But such a graphic and such an optic would miss the underlying transformation under way, one which is highly interactive as well with the transformation of its core sister service the USMC or of the multi-domain drive being pursued by the USAF. And one would totally miss the interactivity of the transforming air wing with the transformation of our core allies.

One clearly needs a different optic or perspective than simply taking an additive approach.

And in effect, what is underway is a shift from integrating the air wing around relatively modest and sequential modernization efforts for the core platforms to a robust transformation process in which new assets enter the force and create a swirl of transformation opportunities, challenges and pressures.

**How might we take this new asset and expand the reach and effectiveness of the carrier air group?**

**How might it empower maritime, air and ground forces as we shape a more effective integratable force?**

To give an example, the U.S. Navy is replacing the C-2 with the CMV-22 in the resupply role.

But obviously, with what the USAF and USMC have done and are doing with the Osprey, the Navy would be foolish indeed simply to think in terms of strictly C-2 replacement lines and missions.

**So how should the Navy operate, modernize and leverage its Ospreys?**

For Miller, the initial task is to get the Osprey onboard the carrier and integrated with its initial air wing operations.

But while doing so, it is crucial for the Navy to work the integratable piece, namely, what can an expanded aperture for the Osprey working within the CAG provide for the integratable air wing?

For Vice Admiral Miller, he is looking for the first five-year period in operating the CMV-22 for the Navy to think through the role of the Osprey as a transformative force, rather than simply being a new member of the carrier air wing.

Such an approach is embedded in the rethink from operating and training an integrated air wing to an integratable air wing.

The aircraft itself is modified from the Marine Corp and Air Force versions with an enhanced fuel capacity which required some wing modifications as well to deal with the enhanced weight. The photo below shows off the fuel blister that provides this variant extra range and endurance.

**There is another key aspect as well.**

The CMV-22 unlike the C-2 can carry an F-35C engine onboard a carrier.

And in 2015, I was onboard the USS Wasp when the Osprey brought an engine onboard the ship to support F-35B operations onboard the ship.

[This experiment done in 2015](#) was obviously successful, and not by chance, the US Navy signed its first contract to launch the CMV-22 program the same year.



F-35 engine brought onboard the USS WASP by an Osprey. Credit Photo: Second Line of Defense, 2015

And perhaps not by chance, a cutting-edge F-35B pilot is now head of the Osprey program at Pax River.

I interviewed [Colonel Matthew “Squirt” Kelly](#) in his office at Pax River last Fall. In that interview we talked about the state of play for the “Osprey Nation,” and the impact of the broadening set of users of the aircraft.

“There is no other air platform that has the breadth of aircraft laydown across the world than does the V-22.

“And now that breadth is expanding with the inclusion of the carrier fleet and the Japanese.

“We currently have a sustainment system which works but we need to make it better in terms of supporting global operations.

“With the US Navy onboard to operate the Osprey as well, we will see greater momentum to improve the supply chain.”

And during my visit to Amarillo, a key point about the reach of Osprey Nation and the nature of the community supporting it was driven home to me.

During the visit to the Final Assembly line, Japanese Ospreys were being prepared for delivery to the Japanese military.

In 2015 when the Japanese Ministry of Defence was preparing for the transformation of its defense force to deal with the new challenges in the region, they released a video in which they showed how Japan would enhance its capability to defend its perimeter.

Yet the Japanese had not yet committed to buying Osprey.

And underlying that final assembly line where I saw the Japanese Ospreys being built for delivery was the highly skilled worked force working in that Bell factory.

As one navy speaker noted at the ceremony: “I would like to first acknowledge the artisans that put this fine machine together. I visited the Bell factory on Wednesday and had a brief walk through of this factory yesterday. This is an incredibly complex machine that you have built and I am in awe of your precise talent and even more inspired by the magic that makes it fly.”

By chance, the Mayor of Amarillo, Ginger Nelson, sat next to me at the ceremony and graciously agreed to meet with me later that afternoon at her office.

I asked her directly: “Why Amarillo?”



She answered that we are community committed to excellence and to training workers both responsible to deliver quality and to train those workers.

She noted that the local government and community colleges were working to shape training opportunities for local residents to be able to support the Bell operation as well as the agricultural industry in the area.

“Our values and are commitments to excellence are at the heart of what the Amarillo community is all about,” she said.

Going from the delivery to Japan for its latest aircraft to Amarillo, that is what I would call deterrence in depth.

And for the Chinese government, I would warn you to not mess with Texas.

## From the Integrated to the Integratable Air Wing: The Transformation of Naval Aviation

02/19/2020



The US Navy over the next decade will reshape its carrier air wing (CVW) with the introduction of a number of new platforms.

If one simply lists the initial operating capabilities of each of these new platforms, and looked at their introduction sequentially, the “air wing of the future” would be viewed in additive terms – what has

been added and what has been subtracted and the sum of these activities would be the carrier air wing of the future.

**But such a graphic and such an optic would miss the underlying transformation under way, one which is highly interactive with the USMC and the USAF.**

A case in point is the coming of the F-35C to the carrier wing.

One could discuss the difference between 4<sup>th</sup> and 5<sup>th</sup> generation aircraft, and the importance of the fifth-generation aircraft, already operating from amphib decks with the USMC, but it is much more than that.

Such a focus would be limited to what I have called F-35 1.0, namely, simply bringing the aircraft to the force and sorting through how to support it.

But the US Navy is focused directly on [F-35 2.0](#) which is how to leverage the aircraft to transform the combat force into the integrated distributed force.

The coming of the F-35 is a [trigger point](#) for a significant remake of the CVW.

The entire process is rethinking the building, operations, transformation, and interaction of the F-35 (and not just operating from the carrier but working with other F-35s in the joint and allied forces) with the core Naval combat force to be able to generate concentrated combat power at the point of interest needed in a crisis.

One clearly needs a different optic or perspective than simply taking an additive approach.

And the graphic above highlights a way to think about the process of transformation for the carrier air wing over the next decade.

**What is underway is a shift from integrating the air wing around relatively modest and sequential modernization efforts for the core platforms to a **robust transformation process** in which new assets enter the force and create a swirl of transformation opportunities, challenges, and pressures.**

**How might we take this new asset and expand the reach and effectiveness of the carrier strike group?**

**How might it empower maritime, air, and ground forces as we shape a more effective (i.e. a more integratable) force?**

During a recent visit to San Diego, I had a chance to discuss such an evolving perspective with the Navy's Air Boss, Vice Admiral "Bullet" Miller.

We started by discussing the F-35 which for him is a major forcing function change in the CVW.

**But his focus is clearly upon not simply introducing the aircraft into the force but ensuring that it is part of the launch of a transformative process for shaping the evolving air wing or what I call F-35 2.0.**

The F-35 is coming to the force after a significant investment and work by the US Navy to rebuild its operational capabilities after several years of significant sustainment challenges.

But now the Air Boss is looking to focus his attention on enhanced combat lethality which the fleet can deliver to the maritime services and the joint force.

What is being set in motion is a new approach where each new platform which comes into the force might be considered at the center of a cluster of changes.

The change is not just about integrating a new platform in the flight ops of the carrier.

The change is also about how the new platform affects what one can do with adjacent assets in the CSG or how to integrate with adjacent U.S. or allied combat platforms, forces, and capabilities.

To give an example, the U.S. Navy is replacing the C-2 with the [CMV-22](#) in the resupply role.

But the Navy would be foolish to simply think in terms of strictly C-2 replacement lines and missions.

So how should the Navy operate, modernize, and leverage its Ospreys?

For Miller, the initial task is to get the Osprey onboard the carrier and integrated with CVW operations.

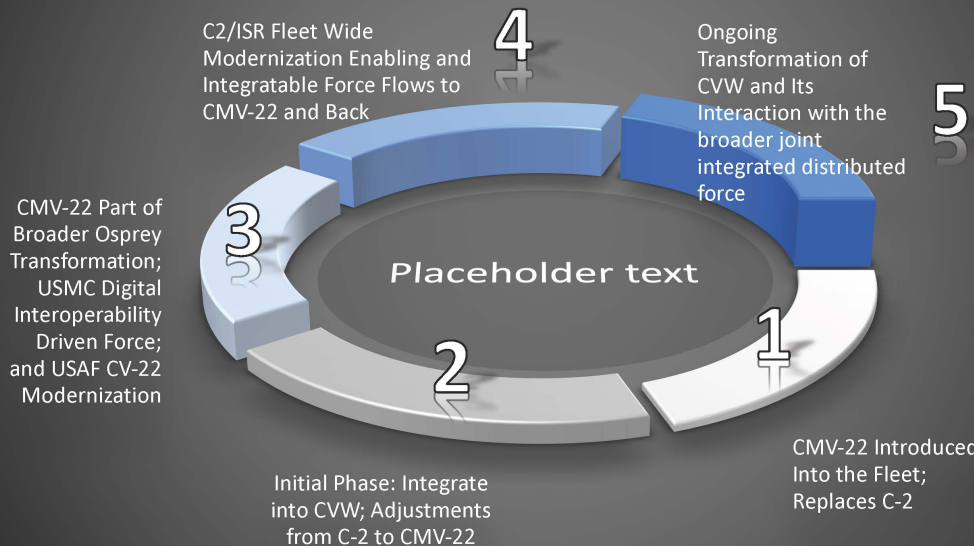
But while doing so, it is important to focus on how the Osprey working within the CVW can provide a more integrated force.

Vice Admiral Miller and his team are looking for the first five-year period in operating the CMV-22 for the Navy to think through the role of the Osprey as a transformative force, rather than simply being a new asset onboard a carrier.

Hence, one can look at the CMV-22 innovation cluster in the following manner:

## CMV-22 Cluster

IOC, Integration into CVW Ops, and Interactive Contributor to Integrable Joint and Coalition Force



**Such an approach is embedded in the rethink from operating and training an integrated air wing to an integratable air wing.**

Vice Admiral Miller provided several other examples of how this shift affects the thinking about new platforms coming onboard the carrier deck.

One such example is the new unmanned tanker, the MQ-25.

The introduction of this new air asset will have an immediate effect in freeing up 4<sup>th</sup> gen fighters, currently being used for tanking, to return to their strike role.

Even more importantly from a transformation perspective, the MQ-25 will have operational effects as a platform which will extend the reach and range of the CVW.

**But MQ-25 will be a stakeholder in the evolving C2/ISR capabilities empowering the entire combat force, part of what, in my view, is really 6<sup>th</sup> generation capabilities, namely enhancing the power to distribute and integrate a force as well as to operate more effectively at the tactical edge.**

The MQ-25 will entail changes to the legacy air fleet, changes in the con-ops of the entire CVW, and trigger further changes with regard to how the C2/ISR dynamic shapes the evolution of the CVW and the joint force.

The systems to be put onto the MQ-25 will be driven by overall changes in the C2/ISR force.

These changes are driving significant improvements in size, capability, and integration, so much so that it is the nascent 6<sup>th</sup> gen.

This means that the USN can buy into “6<sup>th</sup>gen” by making sure that the MQ-25 can leverage the sensor fusion and CNI systems on the F-35 operating as an integrated force with significant outreach.

It is important to realize that a four ship formation of an F-35 operating as an integrated man-machine based sensor fusion aircraft is can operate together as a four ship pack fully integrated through the CNI system, and as such can provide a significant driver of change to the overall combat force.

This affects not only the future of training, but how operations, training, and development affect individual platforms once integrated into the CVW and larger joint force.

**This will have a significant impact on Naval Air Warfare Development Center (NAWDC) based at Fallon.**



*SAN DIEGO (Oct. 10, 2019) Vice Adm. DeWolfe H. Miller III, Commander, Naval Air Forces, speaks at the Fleet Logistics Multi-Mission Wing (COMVRMWING) 1 establishing ceremony on board Naval Air Station North Island (NASNI) Oct. 10. The Navy established its first CMV-22B Osprey squadron (VRM-30) Dec. 14, 2018 at NASNI. The Navy's transition from the C-2A Greyhound to the CMV-22B Osprey is expected complete by 2028. U.S. Navy Photo by Mass Communication Specialist 2nd Class Chelsea D. Meiller*

A key piece in shaping the integratable air wing is building out a new training capability at Fallon and a new set of working relationships with other U.S. and allied training centers.

Later this year, we will visit Fallon and provide more details on the evolving approach.

The head of Fallon, Rear Admiral Richard Brophy, joined the conversation with the Air Boss, and clearly underscored the challenge: “How do we best train the most lethal integrated air wing preparing to deploy, but at same time, prepare for the significant changes which introducing new platforms and concepts of operations can bring to the force?”

As the Air Boss put it: “We need to properly train the integratable airwing and we are investing in expanded ranges and new approaches such as Live Virtual Constructive training.

“I often use the quote that ‘your performance in combat never raises to the level of your expectations but rather it falls to the level of your training.’

“This is why the training piece is so central to the development for the way ahead for the integratable training.

“It is not just about learning what we have done; but it is working the path to what we can do.”

### Consider the template of training for CVW Integration.

On the one hand, the CVW trained at Fallon needs to prepare to go out into the fleet and deliver the capabilities that are available for today’s fight.

On the other hand, as this template is executed, it is important to shape an evolving vision on how to operate platforms coming to the fleet or how those assets have already been modified by software upgrades.

A software upgradeable fleet, which is at the heart of the 5th gen transition and which lays down the foundation for 6th generation c2/ISR provides a key challenge.

The F-35 which operated from the last carrier cycle, or flew with the P-8 or Triton, all of these assets might well have new capabilities delivered by the software development cycle.

### How to make certain that not just the air wing, but the commanders at sea fully understand what has changed.

The challenge is to shape the template for training today’s fleet; and to ensure that the template being shaped has an *open aperture* to handle the evolution of the CVW into the evolving integrated and distributed force.

Two measures of the change in the shift from the integrated to the integratable CVW which we discussed are the question of how to measure the readiness of a fifth-generation aircraft and the

second is the creation of a new patch in Fallon, which builds upon the lessons learned during the early TOPGUN days.

**The first is that aircraft readiness is a key measure of combat preparedness.**

Rates of aircraft availability for a combat aircraft, can it fly or not is a baseline indicator of combat availability.

But for VADM Miller, the F-35 needs to be measured by a different standard given its key role in enabling an integratable CVW, namely full mission capability.

**Can the aircraft fly with its full mission capability today?**

This expectation reflects the F-35's role as a flying combat system, mission manager, and sensor fusion generator for the air wing and strike group.

**The second is the creation of the Maritime ISR or MISR patch.**

MISR officers are trained as ISR subject matter experts to operate at the fleet or CSG level and to work the sensor fusion for the integratable CVW.

According to the Air Boss: "I think of MISR as additive, not lessening of TOPGUN, but instead akin to a new phase which builds upon our historical experience in the development of TOPGUN in the first place."



In effect, these are "6<sup>th</sup> generation officers" in the sense of working the C2/ISR capabilities which enable an integrated and distributed fleet to have its maximum combat impact.

**In short, the fleet is in the throes of significant transition.**

The emergence and forcing function of an integrated CVW is at the heart of the transition.

And the emergence of a new patch at NAWDC certainly highlights the change.

Air to air combat skills remain important but now with your wingman miles away in a fifth generation aircraft context, or [Aegis operating as your wingman](#), the C2/ISR revolution is highlighting the evolving capabilities of integration for combat dominance.<sup>1</sup>

## **The Next Phase of Development for Osprey Nation: From Reach to Working Effectively in an Integrated Distributed Force**

**10/31/2019**

Recently, I had a chance to visit Naval Air Station Patuxent River and to meet with Col Matthew Kelly, who is in charge of the V-22 Joint Program Office (PMA-275).

I first met “Squirt” when he was an [F-35B test pilot](#) and indeed was selected as [test pilot of the year in 2011](#).

Having come from the F-35 world, where the entire command and control (C2) and intelligence, surveillance and reconnaissance (ISR) infrastructure is being reworked, is a perfect community for the new head of the V-22 Program to come as that aircraft is undergoing a fundamental transformation.

**It is often overlooked that the US Air Force Special Forces Command (AFSOC) and Marine Corps are still the only tiltrotor forces in the world.**

And the Osprey from the outset has demonstrated a speed and reach capability which traditional rotorcraft simply have not replicated.

I first saw Ospreys on the tarmac in 2007 at Marine Corps Air Station New River and have followed their evolution ever since.

As Col. Kelly noted in our conversation: “I first flew on an Osprey in Iraq in 2008.

“It was the only assault asset which could cover the entire combat theater in one flight.

“And senior officers, whether from the Army, Air Force, Navy or Marine Corps, soon demanded an Osprey to fly on when touring the battlespace.

“They could move much more rapidly and to see the battlespace in a much shorter period of time.”

**The physicality of the Osprey has had a major impact on the Marine Corps and its approach to its assault forces.**

The reach of the aircraft in terms of speed and distance which it can cover has revolutionized how the Marines conduct assault operations.

But Col. Kelly has come to the program with a major shift underway for the Marines.

That shift requires the aircraft not simply to be a robust distance runner but to become smart in the digital battlespace.

This requires major modifications to the aircraft in terms of its ability to work with data, generate data and to work in the evolving C2 and ISR infrastructure which the Marine Corps is building for its approach to building an integrated distributed force.

Coming from the F-35 program provides Kelly with a leg up in terms of understanding what that aircraft can contribute to the Osprey and how, in turn, the V-22 aircraft needs to be modified to a more useful member of the integrated distributed force.

“With the Marine in the back of the Osprey working with his MAG-Tab (tablet), he or she is able to gain access to information flowing in from other platforms in the battlespace.

“And that is one key aspect of what we are focused on as we rework the program.

“Indeed, we have already done exercises at MAWTS-1 and VMX-1 where the Marine in the back of a V-22 can be looking on his MAG-TAB at a video generated from an H-1 or an F-35 operating in the same battlespace.”

And the V-22 working with the F-35 is a key element of being able for the Marine Corps/Navy team to work a Lightning carrier approach whereby an LHD like the USS America can operate a significant number of F-35s with accompanying Ospreys.

**And this approach clearly is about changing dramatically the nature of what a Marine Corps assault force looks like as well as the combat effect it can achieve.**

Col. Kelly, in language reminiscent of how the ADF describes the impact of the F-35 on its combat transformation, refers to what he calls a fifth-generation assault force.

And that process this means changes need to and are being made to the Osprey itself.

With the coming of the CH-53K, the assault group will be further transformed in terms of the mass and combat force which can be delivered by the evolving capabilities of the assault force.

And the K is taking advantage of the re-crafting of the Osprey to build in from the outset the kind of digital capabilities which the Osprey did not have at birth, but are now being added within the scope of the kind of C2 and ISR infrastructure which can be built into the upgraded Osprey.

**Another key aspect of the change facing the V-22 community: the Navy becoming an operator of the Osprey for the carrier resupply mission and the Japanese becoming the first FMS customer for the aircraft.**

This means that the original plank holders of the program, AFSOC and the Marine Corps, are being joined by an expanded set of users.

This places a demand on the program to do a better job with regard to global sustainment but also provides the opportunity to leverage the budgets of additional stakeholders to expand the sustainment infrastructure as well.

“There is no other air platform that has the breadth of aircraft laydown across the world than does the V-22.

“And now that breadth is expanding with the inclusion of the carrier fleet and the Japanese. We currently have a sustainment system which works but we need to make it better in terms of supporting global operations.

“With the US Navy onboard to operate the Osprey as well, we will see greater momentum to improve the supply chain.”

**We then discussed the impact of Additive Manufacturing (AM) on the V-22 program.**

Kelly noted that the V-22 program was very forward leaning one with regard to finding ways for AM to provide supply chain complementarity on the fly, something very important for ship-based operations for sure.

“Our Marines, including MAWTS-1, have been aggressively pushing ways to use AM to support the aircraft.

“For example, last year at New River, Marines invented a tool in the tire shop to remove interior nuts and bolts off of the wheel hub.

“They designed and produced the tool with AM and after a short turn around this tool is now being used fleet wide.”

“We are doing a test today of a 3-D printed hub strap for a V-22 which is a part which has been a degrader for us in our supply system. We are working on an AM replacement for the strap and we are currently in the process of testing the part to ensure that it is a viable one.”

Col. Kelly noted that with the maturation of the fleet, the program has quite accurate fleet metrics and are using these metrics to shape their Performance Based Logistics contracts going forward.

Rather than tying incentives to piecemeal elements of the aircraft, the shift in focus has been upon decreasing the non-mission capable rates in the fleet.

“If fleet non-mission capable rates go down, Bell and Boeing receive more money.”

He also argued that as manufacturing experience has improved and the quality of the initially produced aircraft are better, providing a boon to fleet performance.

“The aircraft that is coming off of the line today as part of the multi-year three contract is much different than the ones produced in multi-year one or two,” he said.

“You are seeing a much more reliable airplane from the outset which requires much lower maintenance man hours per flight hour as well.”

In short, the V-22 team is making the aircraft smarter to go along with its range and speed physical capabilities.

And the maturing of the manufacturing processes is delivering a reliable aircraft.

But as the Navy becomes a direct user of the aircraft along with the Japanese, there are new challenges facing the program, most notably, how to provide better global sustainment to the global fleet of aircraft.

Put broadly, the aircraft which replaced the CH-46 became a physically wondrous asset that changed how the Marines could operate in the Middle East land wars to now becoming part of the fifth-generation revolution.

**Note: After the CMV-22B enters the fleet it will become part of the integratable air wing and as such will come to Fallon and become part of the NAWDC training regime.**

**And it will enter the strategic shift to working the kill web which will highlight the importance of the integratability of the aircraft in the overall evolution of the US Navy’s approach to maritime distributed operations.**

**We are building out a series on this strategic shift through interviews conducted with the command.**

**The first of these interviews, which is the logical place where the CMV-22B might become a core member, is with CDR Jeremy “Shed” Clark, Senior Leader at the Naval Rotary Wing Weapons School (SEAWOLF) at NAWDC.**

# The Evolving Role of Rotary Wing Platforms in the Integratable Carrier Air Wing

05/01/2020

During my last meeting with Vice Admiral Miller in San Diego, we discussed the way ahead with regard to the air wing as it become integrated into a wider kill web concepts of operations.

In that conversation, we highlighted the shift as one from building an integrated air wing to working an open ended and evolving integratable air wing.

A key element in such a shift is when new platforms come onboard, the carrier or parts of the air wing, work with non-organic combat asset with integratability as key challenge and opportunity to be worked across the force to ensure that the distributed force can exercise maximum effectiveness.

**This focus creates a major training challenge but also significantly expands the impact which training can have on operations.**

I discussed this challenge with VADM Miller and Rear Admiral Brophy, the head of NAWDC or the Naval Aviation Warfighting Center, during [my last visit to San Diego](#).

*The head of Fallon, Rear Admiral Richard Brophy, joined the conversation with the Air Boss, and clearly underscored the challenge: "How do we best train the most lethal integrated air wing preparing to deploy, but at same time, prepare for the significant changes which introducing new platforms and concepts of operations can bring to the force?"*

*As the Air Boss put it: "We need to properly train the integratable air wing and we are investing in expanded ranges and new approaches such as Live Virtual Constructive training."*

*"I often use the quote that 'your performance in combat never raises to the level of your expectations but rather it falls to the level of your training.'*

*"This is why the training piece is so central to the development for the way ahead for the integratable training."*

*"It is not just about learning what we have done; but it is working the path to what we can do."*

**NAWDC is working with the key American warfighting centers to shape a way ahead for Naval aviation within the broader world of building an integrated distributed force operating across the spectrum of warfare.**

**This affects each platform or core competence being worked at NAWDC.**

Recently, I had the chance to talk with CDR Jeremy "Shed" Clark, Senior Leader at the Naval Rotary Wing Weapons School (SEAWOLF) at NAWDC.

The Seawolf School focuses on Romeo, Sierra, and Fire Scout training, with Romeo being the sensor rich ASW/SUW/EW and related tasked focus helo onboard the Navy's large deck carriers.

We discussed the shift which the Admirals had outlined in my San Diego meeting and how it affected the training approach for the helicopter communities.

The shift from focusing largely on a targeted task for carrier defense and upon how the organic capabilities on the Romeo and Sierra could play their task most effectively to one where the focus is on broadening the sensor and strike partners of these platforms who can contribute to carrier strike and defense is a significant one.

Rather than quote the CDR directly, I will identify a number of takeaways which I drew from the conversation but for which I am not going to hold him responsible for.

The first point is that the aperture of considering the role of all rotary wing assets expands significantly as one shifts from a legacy carrier strike operation focus to broader support to a distributed maritime force.

Due to the nature of where helicopters deploy this means that the sensors onboard these platforms can see their reach significantly expanded by being able to integrate with other sensors in the battlespace.

Rather than being platform focused, the shift is to empower the Romeo/Sierra/Fire Scout and their reach with an expanded sensor network.

This sensor network will be found both onboard each helicopter as well as with other aircraft onboard the carrier, but more broadly into the interactive allied working capabilities in the expanded battlespace.

The second point is that new assets coming onboard the carrier are going to be looked at from the outset in terms of what they can contribute to the sensor network and decision-making capabilities of the strike force.

For example, we discussed the coming of the MQ-25. The Romeo community is already looking at how having sensors onboard the MQ-25 can expand the reach and range of what the Romeo's onboard sensors can accomplish for the maritime distributed force.

It is also the case that as sensor demands currently made on the Romeo can be shifted elsewhere.

The Romeo can refocus its task priorities and enhance its contributions to broader mission sets such as ASW and to focus on contributing capabilities that other platforms within the strike group are not prioritized to perform.

The third point is that the new generation of Navy operators are clearly thinking in kill web terms – they are not focused simply on what their platform can do based on how they were trained, but how

they can work in the broader battlespace to deliver the desired effects working closely with partners in the sensor, decision-making and strike web.

He argued that this meant that NAWDC is looking at how to change the entire dynamic of the strike group with such an approach.

The fourth point is that with the distributed sensor network being built, manned helicopters can reduce the amount of time they need to be airborne to provide a core sensor set of tasks.

The so-called unmanned revolution is ultimately about expanding the sensor network and allowing the manned operators within that network to operate more efficiently and more effectively; it is not primarily about replacing them in the battlespace.

The fifth point is that the kill web learning curve has a major impact on thinking about acquisition.

Rather than focusing on the systems proprietary to a specific task oriented platform, the focus is shifting towards integratability: what system can I tap onboard my platform via integratability with other combat assets, and what systems do I have onboard which provide a specific capability which the kill force needs to be able to leverage to enhance combat effectiveness?

The sixth point we discussed was the repurposing of the Fire Scout unmanned system.

Originally, this was platform tasked, namely, to support the littoral combat ship.

But with the new approach of utilizing all assets within a kill-web, the question is how the helicopters working with Fire Scout can add the fleet needed capabilities, and where might the Fire Scout operate from within the fleet to gain maximum impact?

**This a significant shift and part of the dynamics of change unfolding at NAWDC.**

And CDR Clark highlighted that his team is working on ways to deliver some EW capability via Fire Scout integration with assets onboard the Growler EW aircraft.

**In short, the shift is dramatic.**

Historically, training was done in stove pipes.

One would train to be the best operator you could be on that platform.

Now, that is not enough; obviously critical but the foundation for working a different way.

The focus is upon working in a kill web and cross-linking capabilities within a distributed integrated force.

*Photo Credit for Cover Photo:*

*Just recently Air Test and Evaluation Squadron (HX-21) and Air Test and Evaluation Squadron (VX-20) wanted to honor the final C-2A Greyhound test aircraft (BuNo 162142) before it was retired to the Pax museum.*

*What better way than a photo flight to illustrate the passing of the Carrier Onboard Delivery (COD) mission featuring the first-ever US Navy variant of the V-22 Osprey, the CMV-22B with the venerable C-2 Greyhound.*

*Photo credit: Erik Hildebrand / US Navy*

<https://www.heliopsmag.com/changing-of-the-guard-c2-to-the-cmv-22b>