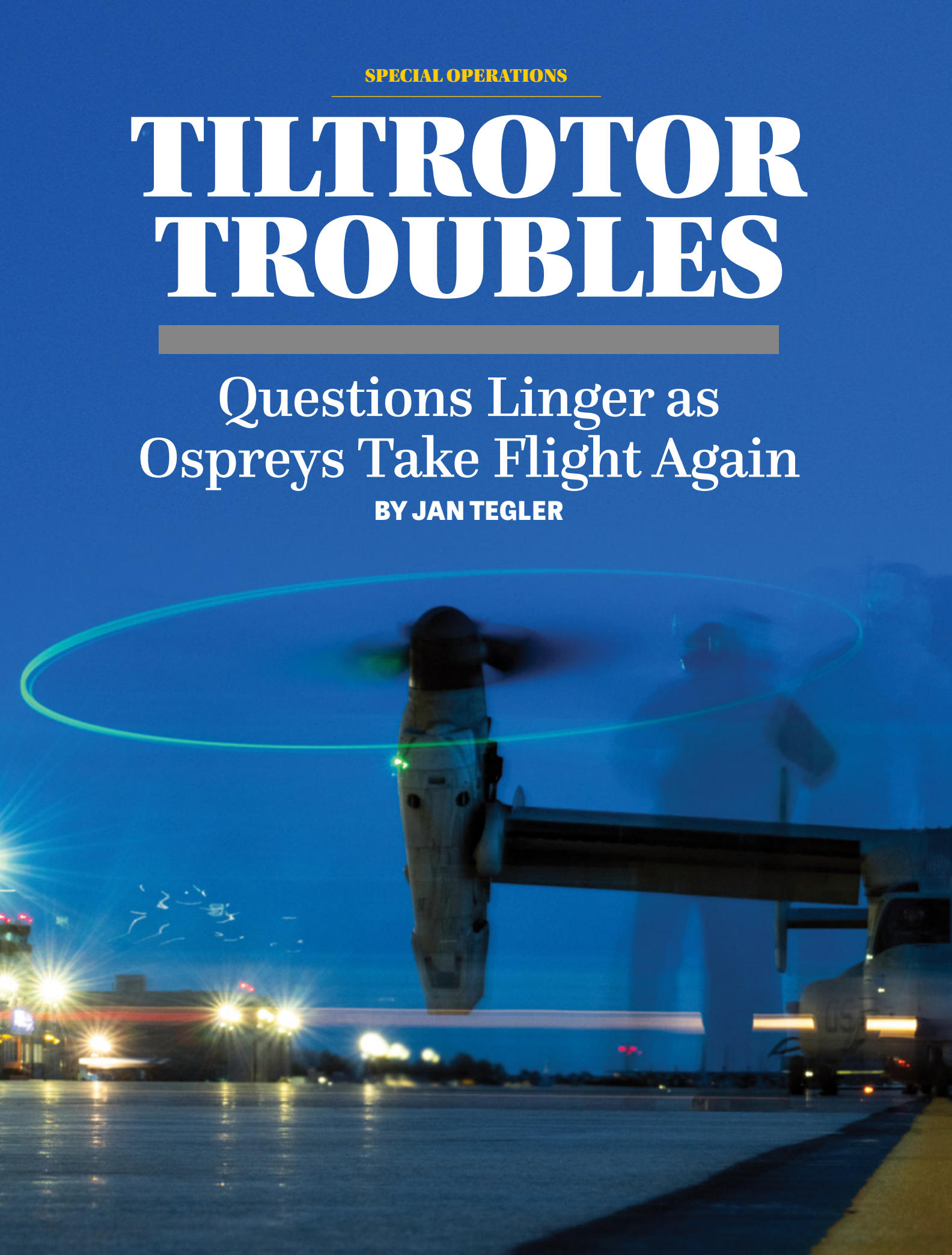
SPECIAL OPERATIONS

TILTROTOR TROUBLES

Questions Linger as Ospreys Take Flight Again

BY JAN TEGLER



The resumption of V-22 flight operations in March after a three-month pause marked the second time in two years that the Osprey has returned to flight without its special operator, Marine and Navy pilots understanding the failures that led to its grounding.

Navy and Air Force officials say the tri-service V-22 fleet is safe to fly again with newly implemented safety protocols that address the unprecedented failure of a single component that led to the fatal Nov. 29 crash of an Air Force CV-22B and the grounding of all V-22s in early December.

"There was not any sort of demand from the services to get the aircraft back into flight," Col. Brian Taylor, program manager for the V-22 Joint Program Office, said during a media roundtable two days prior to the rescinding of the grounding order on March 8.

He described the decision to return to flight as the result of a "meticulous and data-driven approach" to investigations conducted over roughly two months following the recovery of the CV-22 from the waters off Yakushima Island, Japan, where it crashed.

But analysts contend that impacts from grounding V-22s have been so significant that the services were compelled to resume operations.

"There's not a clear backup for the Marines, there's not a clear backup for the Air Force, and soon there won't be a backup for the Navy's [carrier onboard delivery] mission," said Bryan Clark, senior fellow and director of the Hudson Institute's Center for Defense Concepts and Technology.

Clark was referring to the range of niche missions Bell-Boeing's tiltrotor Osprey carries out for the military, missions that have become integral to current operations and operational concepts.

In service since 2007 — 18 years after the aircraft's first flight — the V-22 has become an essential tool for combat assault support, air logistics and transport for the Marines, special operations support and search-and-rescue mis-

Defense Dept. photo

National DEFENSE

sions for Air Force Special Operations Command and delivery of items and equipment crucial for deployed Navy carrier air wings.

Able to takeoff or land vertically like a helicopter then transition to forward flight like an airplane, the V-22 is the first and only operational tiltrotor globally, also serving with Japan's Ground Self-Defense Force.

It's a capability the military, particularly the Marine Corps, has become dependent on, Todd Harrison, a senior fellow at the American Enterprise Institute, noted.

"This is a consequence overall of our military narrowing down to the point where we have dependencies on single platform types for significant parts of our force structure," Harrison said.

"We've done that with the V-22. We are critically dependent on that single platform," he said.

It's a reality the Marine Corps' Assistant Deputy Commandant for Aviation Brig. Gen. Richard Joyce alluded to in remarks during the media roundtable.

Asked about the impact the V-22 grounding had on Marine operations between December and March and continuing impacts as aircrew and aircraft return to flight in a three-phase process expected to extend well into the summer, Joyce said: "The ability of the V-22s compared to any other platform is part of the operational impact."

SEE THE V-22 IN ACTION

"That's range, speed and maneuver. A [CH-53E] cannot go 1,300 nautical miles on a refuel, conduct a mission and come back," he explained, referring to the service's heavy lift helicopter.

The Navy's aged but still active CH-53E fleet was called upon extensively to substitute for Marine Ospreys deployed with the 26th Marine Expeditionary Unit on the USS Bataan, MV-22s forward-based with III Marine Expeditionary Force in Okinawa, Japan, and to support other units across the world.

Joyce added that clearing individual MV-22s for flight while simultaneously restoring the currency and proficiency of aircrews and surging parts for squadrons scheduled to deploy could impact the availability of Ospreys for upcoming deployments.

The status of the Marine Medium Tilt Rotor Squadron VMM-165 — scheduled to deploy with the 15th Marine Expeditionary Unit aboard the USS Boxer sometime this spring — was unknown when Joyce spoke to the media. But the command told *National Defense* the squadron will deploy aboard Boxer. However, it declined to say whether the unit will sail with Boxer when the ship departs San Diego or if it will deploy sometime later.

Air Force Special Operations Command and the Navy will follow service-specific but similarly phased paths back to flight operations following the safety protocols the V-22 Joint Program Office has implemented.

Taylor confirmed that the protocols include increased frequency for safety/maintenance inspections as well as changes to flight procedures that he could not describe due to operational security.

Additional inspections for the already maintenance-intensive Osprey fleet will likely impact its operational availability, Clark noted. Similarly, changes in flight procedures may impose limits on how V-22s can be flown.

"I think what they did was come up with an operational work-around to mitigate the impact of the design shortfalls they must be finding and get the aircraft back into operation. But it probably constrains their flight envelope, where they can operate and how long they can operate," he said.

That is an ongoing issue, he said, explaining that the recent groundings and prior Osprey groundings in August 2022 and February 2023 have resulted in a growing list of operational limitations that affect the V-22's ability to perform a wide range of missions.

"I think what you're seeing is a continued erosion of the flexibility of the aircraft in the pursuit of sustained operations," Clark observed.

Defense Dept. photo

Teal Group senior defense analyst J.J. Gertler said he sees a desire that may be gaining momentum across the military to replace the 1980s-designed Osprey. Gertler recently interviewed AFSOC Commander Lt. Gen. Tony Bauernfeind for the weekly Defense and Aerospace Report podcast.

"It's clear that he wants to get beyond it and move to the next thing," Gertler said. "Something with more legs and more speed and similar VTOL capability, but he's not in love with V-22."

Bauernfeind made similar comments at the Air and Space Forces Association's Warfare Symposium in February, outlining a trio of AFSOC investigations into the CV-22 crash and a larger review which he said revolves around the question: "Is the CV-22 force appropriately organized, trained and equipped for safe, effective and efficient special operations?"

He also indicated that AFSOC is closely monitoring the Defense Advanced Research Project Agency's Speed and Runway Independent Technologies project aimed at developing an X-plane that could hone the technology needed for a V-22 replacement and the U.S. Army's ongoing Future Long Range Assault Aircraft program featuring a second-generation tiltrotor aircraft, Bell Flight's V-280 Valor.

Joyce said the Marine Corps is focused on "mid-life modernization" of the Osprey during the media roundtable, adding, "We are not having conversations right now about anything that replaces V-22."

That's because the cost of replacing the 348 MV-22Bs in the Marines' inventory — with 12 more on contract — is unaffordable, Clark observed.

"There's no money to replace all of those airplanes that are only halfway through their service life, much less do something new, so the DoD's in this corner," he said. "I think they're kind of stuck with what they've got, and the Marines are going to have to figure out how to mitigate their dependence on it."

A June 2022 report from the Pentagon's Director of Operational Test and Evaluation declared the Navy's CMV-22B — slated to replace the C-2A Greyhound for carrier onboard delivery entirely by 2026 — "not operationally suitable" due to its inability to meet maintenance hour to flight hour requirements and failures of its ice protection system and other subsystems. The declaration was confirmed in the organization's fiscal year 2023 annual report released in February.

The Navy currently operates 29 CMV-22Bs with a further 19 on contract while Air Force Special Operations Command has 54 CV-22Bs. Combined that's slightly less than a third of the MV-22Bs in the Marine Corps inventory. But if, like AFSOC, the Navy also begins to look beyond the CMV-22B, it might spur a wider effort to replace the V-22, according to Harrison.

"If the other services expend both the political capital and the up-front cost of getting a suitable replacement aircraft on contract, that certainly would make it a lot easier for the Marine Corps to join that process in the future once funding becomes available," he said.

Taylor revealed that due to saltwater corrosion that occurred during the month it took to recover the crashed CV-22, it may never be known why the component that downed the aircraft failed.

During the media roundtable, AFSOC's Bauernfeind said: "We're looking at better understanding the material manufacturing of that part."

Bell Flight was asked if a manufacturing flaw could have caused a material failure, but the contractor did not respond. The joint program office said it is "unknown if it was a manufacturing fault that led to the failure of this component."

Fixes planned for the Osprey fleet prior to the most recent grounding including retrofitting the aircraft with a redesigned input quill assembly — a part of the V-22's complex gearbox drive system suspected to be the cause of the hard clutch engagement that led to the crash of an MV-22B in June 2022 near Glamis, California — will be expensive.

Other costly additions include the new component vibration monitoring system purchased last March by Naval Air Systems Command for all Ospreys, as well as any component replacements that may be necessary if investigations into the CV-22B crash ultimately explain why the single part that grounded the fleet failed.

Taylor stated why the V-22 fleet is flying again in his roundtable remarks.

"Returning these vital assets to flight is critical to supporting our nation's interests," he said. ***ND***