VAMPIRE TESTERS

AIR TEST AND EVALUATION SQUADRON NINE

This photo: **Low down in the now renowned Rainbow Canyon, the VX-9 CO's F/A-18E Super Hornet dashes through the vast R-2508 range complex. This tight valley is formally known as the Jedi Transition, a low-fly corridor linking the wide Owens Valley with the Death Valley National Park.** Jim Murnaw

Inset left to right: **With the famous VX-9 squadron badge emblazoned on its main hangar wall, an F/A-18F eases out for an afternoon mission.** Jamie Hunter

The magnificent tail art applied to F/A-18E BuNo 166957/XE-111. Dick Wels

Combat Aircraft visits the 'Vampires' of VX-9 at Naval Air Weapons Station (NAWS) China Lake, California, to meet the US Navy squadron responsible for the execution of operational test and evaluation.

report: **DIck Wels**

A REALITY CHECK is what VX-9 'Vampires' is all about. Operational test and evaluation of new and updated weapons and systems performed in a realistic environment, not by specially trained test pilots, but US Navy pilots, fresh from the fleet. Surprising? In fact, it's logical. Aviators with recent experience in a fleet squadron know as well as anyone what the US Navy and Marine Corps demand from their weapon systems. So, who would be more capable of testing them?

NAWS China Lake is located around 150 miles (241km) north of Los Angeles in the western Mojave Desert, adjacent to the city of Ridgecrest. The land, facilities and nearby ranges support the US Navy's research, development, acquisition, testing and evaluation (RDAT&E) of weapons and systems for Navy and Marine Corps aircraft.

The extraordinary environment of China Lake and its surroundings is one of the reasons why it is so alluring to pilots. Encompassing more than 1.1 million acres, it has intriguing variations, including mountains, desert, sand dunes, dry lakes and forests. During WW2, this was a motive behind the choice of China Lake as a test site. The sparsely-populated surrounding area offers the opportunity to conduct supersonic flight and low-altitude high-speed maneuvers. The R-2508 Special Use Airspace Complex is the restricted airspace surrounding China Lake. It encompasses more than 19,600 square miles (51,000 square kilometers) and is jointly managed by NAWS China Lake, Edwards Air Force Base, and Fort Irwin. It provides an unmatched location for integrated testing and training, and incorporates bombing and gunnery ranges, air-to-air refueling, and radar intercept areas. With only four to five days of bad weather annually, there are very few missed opportunities to conduct missions.

Life at 'The Lake'

Before joining Air Test and Evaluation Squadron Nine (VX-9), pilots will have gained the rich experiences of fleet operations. Fleet experience is the most important pre-requisite for an operational test pilot. Some pilots who join VX-9 go to NAS Fallon, Nevada to attend the Strike Fighter Tactics Instructor course, at the Navy Fighter Weapons School (TOPGUN). A few pilots attend the Adversary Training course: a seven-week training program, also at Fallon, designed to teach aircrew how to

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CDR William Agerton

simulate an enemy opponent. Adversary pilots are essential for the conduct of operational tests. Typically, newly-assigned aircrew are identified to serve as an Operational Test Director for a specific acquisition program and will function in that capacity for the duration of their tour (normally two to three years).

China Lake is home to two Air Test and Evaluation Squadrons: VX-9 'Vampires' and VX-31 'Dust Devils'. VX-31's mission is to test and evaluate developmental weapons and software systems used on various strike and assault aircraft. The unit employs test pilots to check rigorously the early stages of development through controlled scenarios. They advise when a weapon or system is ready for operational examination. Once this approval is given, VX-9 puts it to the test to see if the requirements of the fleet are met.

CDR William Agerton, VX-9's flight surgeon, explains: 'In VX-9 we like to work with fleet pilots. We want our aircrew to act with their aircraft and weapon systems in the way that the majority of US Navy or Marines pilots would do. They are up to date with the way the US Navy and Marines operate and know what is expected of crews and the systems that they use during their operations. They use realistic combat scenarios to get an accurate opinion of the ability of the tested weapon or system. So, in our opinion, these aviators are the best possible reviewers of new systems or updates of existing systems.'

The test work in VX-9 is divided across several project branches:

- Mission Systems
- Weapons
- Electronic Warfare
- Light Attack
- AV-8B Harrier II
- Tactics

The Mission Systems branch takes care of testing sensors, communication systems, and all of the software that supports the F/A-18 Hornet and Super Hornet, the latter nicknamed 'Rhino'. The Weapons branch tests new weapons on the Hornet and 'Rhino', and the Electronic Warfare branch those systems associated with the EA-18G Growler and EA-6B Prowler, while the Light Attack branch does likewise with helicopter-related systems and weapons, and the AV-8B branch specializes in testing for the Harrier II. Tactics is a special branch within VX-9, interacting with all the other branches of the squadron. The unit provides its perspective on tactics, techniques, and procedures associated with the weapons and systems being fielded.

In all cases, during operational tests the individual system is evaluated as well as the 'system of systems', which could be thought of as the aircraft as it functions in concert with the new systems on board. A team of analysts typically works with the Operational Test Director to help co-ordinate events, analyze data and write reports. All possible combat scenarios are worked through, including large-force strike packages. The systems have to perform under any circumstances. Besides testing the weapon/system itself, integration with other platforms — like US Navy ships — is evaluated.

FOUR PLUS FIVE

VX-9, or AIRTEVRON NINE, was established in 1994 when VX-4 and VX-5 were combined, but its origins date back to 1950. In that year, VX-4 'Evaluators' was commissioned at NAS Atlantic City, New Jersey. Two years later, the squadron moved to NAS Point Mugu, where it remained until 1994. The unit became well known for its black-painted 'Bunny' F-4 Phantom IIs and F-14 Tomcats. It also conducted a considerable amount of testing in co-operation with US Navy ships and submarines. VX-5's role primarily involved testing in the air-to-air and air-to-ground role. The squadron bore the name and emblem that VX-9 uses now: the 'Vampires'. It began life in 1951 at NAS Moffett Field, California, re-locating five years later to NAWS China Lake in the same state.

VX-9 is larger than an average US Navy squadron. Today the 'Vampires' have 34 pilots, 18 Naval Flight Officers (NFOs), 300 maintenance professionals, and close to 100 civilians supporting the squadron. The flying inventory consists of a mix of 24 aircraft from both the US Navy and the US Marine Corps: 11 F/A-18E/F Super Hornets, six F/A-18C/D Hornets, three EA-18G Growlers, two AH-1W/Zs and two UH-1Ys. It co-operates with VX-31 for AV-8B Harrier II test flights.

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CAPT Brandt

The majority of pilots and maintainers assigned to VX-9 are regular fleet personnel, a move designed to enable a realistic assessment of new equipment and systems. Dick Wels

This VX-9 F/A-18F carries an unusual combination of a centerline buddy refueling pod and Mk76 practice bombs. Jamie Hunter

The briefing before a test flight is similar to a regular fleet briefing. The aim of the mission is discussed and the team specifies what it wants to achieve. Some 60 to 70 per cent of the tests are executed at China Lake. If specific circumstances not available at China Lake are required, the aircraft deploy to an appropriate location, for example NAS Point Mugu, California, for tests above open water. When all the testing is complete and the results are satisfactory, the system or weapon is labeled 'Ready for Fleet use'. If this is not the case, testing is interrupted until a solution is determined.

Test pilot challenges

Of course, there are differences between VX-9 and a normal fleet squadron. Not only is it larger, but VX-9 also does not deploy operationally. Formal channels exist for the fleet to relay their concerns to VX-9 and the rest of the test acquisition community in order to address the issues most pertinent to them.

Although VX-9 does not go on operations, the aircrew travel often. For example, when a weapon or system is used operationally for the first time, VX-9 aircrew will go to brief individual fleet units on it.

Fleet aviators fly frequent training flights, functioning as students and eventually instructors as they advance in proficiency and experience. In VX-9, the focus is on evaluating the systems under test and how they interact with existing systems on board the aircraft. Pilots at VX-9 fly a comparable number of hours to fleet aviators, since it is important that they accurately represent the fleet. Aircrew will normally fly an average of two to four times a week. Time in the air is spent either maintaining proficiency or participating in test events supporting the systems under test.

In addition to flying, every aircrew member is also assigned a ground job to support the test effort. These range from writing the schedule to being responsible for directing the test effort on one or more acquisition programs. When not flying or preparing for a flight, aircrew are generally performing tasks related to their ground job. As an operational Test Director, the main

A Super Hornet pilot and WSO discuss the last few mission aims as they crew into their jet at China Lake. Jamie Hunter

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LT Mike 'Mitch' Shaughnessy

The Super Hornet is the most numerous type on the strength of VX-9. This example is again seen in the R-2508 Jedi Transition low-flying corridor. Tim Laurence

challenge is co-ordinating with support personnel, the program office, contracting engineers and other test agencies to ensure information is transmitted in a timely and accurate fashion. Developing a test plan and writing test reports are part of that process.

LT Mike 'Mitch' Shaughnessy expresses his feelings about being an operational test pilot: 'Operational testing is a challenging and rewarding link between the acquisition community and the aviators in the fleet. I like the opportunity to directly influence the quality of the product that is delivered to the fleet. We have our fingers on the pulse of what's coming down the pipeline. That responsibility is what makes our job important.'

Exchange experience

The US Navy and US Air Force each have separate organizations responsible for conducting operational tests. In general, because both services fly different aircraft, there are limitations on the relevance of information that they share. But when operating together, systems must be able to interact with each other. Working together often occurs when testing weapons with the 'J' of 'Joint' in their name. In that case VX-9 tests the US Navy/Marines component of a weapon. CDR Agerton: 'Because we are an operational test organization, we look forward to opportunities to fly together and also participate in training events. We have traditionally had an exchange pilot from the United Kingdom on staff. We enjoy trading experiences with them. They offer an inherently different perspective on flying, which is simply a function of their experiences. Because most pilots at VX-9 flew a version of the F/A-18 in the fleet, we welcome that perspective.'

Risky business?

Working with new weapons and systems can lead to unexpected surprises. Does that make it risky to be an operational test pilot? CAPT Brandt doesn't think so: 'I personally believe that flying in a test squadron is safer than flying in a regular squadron. VX-9 is a land-based squadron comprised almost entirely of fleet-experienced aviators. We focus our flying on maintaining proficiency and evaluating new systems and tactics. Developmental and flight test squadrons have normally flown and vouched for the safety of systems under test as a risk migration measure before they arrive at VX-9.

'During test flights we don't go outside acceptable risks. You have to stay away from things that you would not do when assigned to a fleet squadron. And of course we often have observers on the ground, who keep an eye on us. As a result of the extra risk management and safety precautions, our work may even be safer than in a fleet squadron.'

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One of VX-9's two UH-1Y Venoms skims the desert scrub as it heads out on a test mission. Note that it has an AIM-9 Sidewinder launch rail, probably used to carry a range telemetry pod during weapons testing. Jim Murnaw