



Test Plan

The U.S. Naval Test Pilot School turns 66



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A TA-4J Skyhawk attack aircraft sits in front of the main administration building at the United States Naval Test Pilot School (USNTPS), on board Naval Air Station Patuxent River, Md. USNTPS provides instruction to experienced pilots, flight officers, and engineers in the processes and techniques of aircraft and systems test and evaluation. The school investigates and develops new flight test techniques, publishes manuals for use of the aviation test community for standardization of flight test techniques and project reporting, and conducts special projects. USNTPS operates approximately 41 aircraft of 11 types. U.S. Navy photo by Photographer's Mate 2nd Class Daniel J. McLain

Sixty-six years have passed since the U.S. Naval Test Pilot School (USNTPS) was launched on March 12, 1945 with the commencement of the first class of the "Flight Test Pilots' Training Program," the pioneering effort which led to USNTPS. More than 138 classes later, the fundamentals of test flying – performance testing, and stability and control testing – remain the same, but the USNTPS faces new challenges.

In an interesting reflection of the school's test fleet – which includes the oldest aircraft in Navy service, an NU-1B de Havilland Otter delivered to the USN in September 1956, and one of its newest, a Beechcraft T-6B Texan II delivered on March 10, 2011 – USNTPS is straddling different eras. Still firmly dedicated to the training and production of new test pilots, the school is preparing for a new discipline – unmanned aircraft systems (UAS) flight test.

DMN sat down with current USNTPS Commanding Officer Cmdr. A.C. Lynch (a rotary-wing aviator) and the school's longtime Technical Director Rusty Lowry recently to chat about the organization as it enters the second decade of the 21st century.

DMN – What are the greatest challenges for the TPS as it turns 66?

Cmdr. A.C. Lynch – Our single biggest challenge right now is our budget. TPS is an expensive operation, relatively speaking. In the current budget environment we find ourselves justifying the cost of TPS. But several blue-ribbon committees have studied us and have found that our syllabus is about right. The only way we can come within budget is to limit our throughput. We size the classes based on the amount of money that we're going to get out of OPNAV [Office of the Chief of Naval Operations]

Our capacity is 72 – 36 students per class (two classes per year). We have space for 52 Navy and Marine Corps students, our biggest constituents. We're near capacity now. It's from POM [Program Objective Memorandum] 2013 and out where the class sizes may go down. In these budgetary battles [Vice Adm.] Architzel has been a key supporter and the CNO has as well. There's been recognition from both of them that this is a national asset.

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Rusty Lowry – We've undertaken quite a few proactive budget measures over the last several years. A lot of our aircraft inventory changes were driven by long term budget decisions including cost of ownership. We were able to convert some contractor test pilot instructors to civil service test pilot instructors at an annual savings to the school budget. We've also streamlined some of the curriculum events to move from expensive airplanes to less expensive airplanes. At the same time, we've tried to incorporate UAVs into the systems-test side. We've moved off of a P-3 platform and onto a UAV at a significant cost savings. Though it was painful it was probably beneficial, not just to the taxpayer but to the school. I think we've got a great program. As new Navy leadership comes and goes, the challenge is to keep them educated as to the value of the school and the value of funding it.



The USN Test Pilot School has replaced its old Hughes Cayuse helicopters with modern UH-72A Lakotas as a cost-saving measure. NAVAIR photo

DMN – How is USNTPS changing to meet the demands of modern flight test?

Cmdr. A.C. Lynch – We still teach a lot of classic flight test techniques, including performance testing and stability and control testing. But the area where we're really focusing our evolutionary efforts is on UAV/UAS testing. The Naval Test Pilot School is somewhat unique in that we have a focused 11-month airborne systems syllabus. We think it's just about right for a UAV tester. They get an introduction to performance testing and



Another upgrade for the Test Pilot School is the replacement of the T-38A Talon with the glass-cockpit equipped T-38C. NAVAIR photo

stability and control testing. But they have a focus area on all sorts of airborne systems – radar, electro-optics and data-link. The last piece I think we need to focus on is autonomy and how you evaluate that aspect of unmanned systems so the developmental test community can assure decision makers that a system is ready to go to operational test. That's an area we're not sure we have answers for yet, so I chartered a study. One of our instructors is somewhat of an expert on UAS testing. We also have an avionics architecture instructor and both are visiting the Navy, Army and Air Force test centers to see how people are testing UAVs now. I've chartered them to come up with some sort of technical performance measure for autonomy that can be evaluated and serve as a standard that when met, allows testers to turn over a UAS to fleet users.

DMN – The current USNTPS test fleet includes 41 aircraft total in 11 type model series, including T-6B, T-38C, U-6 Beaver, NU-1B Otter, F/A-18F, C-12C (provided by the Army) X-26A Schweizer Glider, OH-58C, UH-60L, SH-60B, UH-72A Lakota. Please tell us about the recent changes to the test fleet.

Cmdr. A.C. Lynch – We've just completed five transitions. We went from T-38As to T-38Cs with the glass cockpit upgrade and upgrades to the engines and nozzles. We also went from T-6A to T-6B. We've replaced our TH-6Bs (Hughes 500) with the UH-72A. We had five F/A-18Bs and now have three F/A-18Fs. That was a money saver. We're actually getting more X's (flight hours) with three F models than we were with the Bs. Our Bs were quite old, actually LRIP aircraft. We had an NP-3D that we've replaced with a contract aircraft, a Saab 340 from Calspan [Corporation] that serves as our Airborne Systems Test and Research Support training aircraft. We basically took all of the government-furnished equipment out of the NP-3 and put it into the Saab. It carries a mid-life-upgrade APG-66 radar and MX-15 FLIR integrated into a simulated TACAIR cockpit in the back of the airplane. Our rotary wing and fixed wing test pilot students also get systems testing as a part of their syllabus. It's a minor for them as opposed to the systems students for whom it's a major.

Rusty Lowry – That asset is the backbone of our systems syllabus. You can launch with three or four students and have them do air-to-air intercepts. The Saab isn't terribly maneuverable but the advantage is that they can cycle in and out of the seat and watch their classmates as well. They learn from doing and from watching. Instead of launching five sorties, you only have to launch once and you save all the admin and briefing time of five separate launches of five aircraft. It's also cost-effective for us versus the NP-3. You have 100,000 pounds less airplane to lug around. We also utilize the Saab for our short courses, which are two-week classes in fixed and rotary-wing performance and fixed and rotary-wing stability and control, and airborne systems and UAS classes. We use the Saab for the airborne systems short course as well. A lot of the engineers from NAWCAD and NAWC Weapons at China Lake and Point Mugu can come take a short course and fly in the Saab 340. It's great for those guys because it's sometimes difficult to get them in a tactical aircraft.



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DMN – Cmdr. Lynch, you now lead the school you graduated from several years ago. What differences do you notice between yourself and your classmates at TPS and current students?

Cmdr. A.C. Lynch – Most people who've had the opportunity to sit on the selection board for Test Pilot School will, almost to a person say, 'I'm sure glad I'm not applying today because these candidates are really good!' But we do notice a couple of specific differences.

The students now have less flight time than they did in the past. Our target audience on the Navy side is a fleet lieutenant, finishing up his first sea tour. In my case, I came out of that tour with around 1,500 hours. I think that was pretty common. Our minimum for admission to TPS is 1,000 flight hours and these days the students are all down near that minimum. That's a sign of the times in the fleet. The other thing we notice is that things that are difficult for the senior instructor staff, such as operating integrated systems, are much more second-nature to current students. Their adaptability in the world of integrated systems is better. They are more tech-savvy and it's more intuitive for them. The same guys that are writing 'apps' for your iPhone are the guys who are writing the software for GPS integration. That's the way it is in students' minds and people like me are not in on the secret just yet.



While USNTPS is working to save money by modernizing and reducing the number of aircraft types employed, it still boasts the oldest aircraft in the inventory in the shape of the de Havilland NU-1B Otter. NAVAIR photo

DMN – What is the near- and long-term future for USNTPS?

Cmdr. A.C. Lynch – UAS test and evaluation curriculum is our near- and long-term goal. First we'll adapt our systems syllabus to ensure we can produce the best UAS testers possible. In the future that may translate into the other syllabi. Who knows if 50 years from now there will be all UAS testers and no pilots or some mix? We'll start with the systems syllabus and from there the UAS techniques will be incorporated into the other syllabi. In the nearer term, we're working on partnering with the Naval Postgraduate School to confer a master's degree to everyone who graduates from the long-course USNTPS. The other major test pilot schools including the Air Force grant a masters today to graduates.

Rusty Lowry – Our TPS aircraft inventory is the best I've seen in 30 years here. I think it serves us very well for at least the next decade of quality flight instruction. Continuing to provide flight test education for the pilots of our partner countries and the exchanges with them where we go and look at their facility when we fly will continue to be important. We've taken that to a second level with NATO, which has a pretty active flight test committee. We're represented on that committee. I want see us hopefully continue to be involved not just domestically but on the international level, spreading the word about flight test techniques. In a joint world of operations and very complex relationships between countries, knowing that the Romanian jet next to you is flying at the same altitude you are because they flight tested their pitot-static system the same way is comforting.

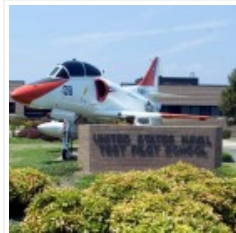
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