



Unmanned Aircraft Systems Pilot Training

May 26, 2016

Fiscal Year 2016 Report to Congress



Homeland
Security

U.S. Customs and Border Protection

Message from the Deputy Commissioner of CBP

May 26, 2016

I am pleased to submit the following report, "Unmanned Aircraft Systems Pilot Training," prepared by U.S. Customs and Border Protection (CBP).

This document has been compiled pursuant to requirements in the Joint Explanatory Statement and in Senate Report 114-68, which accompany the *Fiscal Year 2016 Department of Homeland Security Appropriations Act* (P.L. 114-113).



Pursuant to congressional requirements, this report is being provided to the following Members of Congress:

The Honorable John R. Carter
Chairman, House Appropriations Subcommittee on Homeland Security

The Honorable Lucille Roybal-Allard
Ranking Member, House Appropriations Subcommittee on Homeland Security

The Honorable John Hoeven
Chairman, Senate Appropriations Subcommittee on Homeland Security

The Honorable Jeanne Shaheen
Ranking Member, Senate Appropriations Subcommittee on Homeland Security

I would be pleased to respond to any questions you may have. Please do not hesitate to contact my office at (202) 344-2001 or the Department's Deputy Under Secretary for Management and Chief Financial Officer, Chip Fulghum, at (202) 447-5751.

Sincerely,

A handwritten signature in black ink, appearing to read "K. McAleenan". The signature is stylized and includes a long horizontal line extending to the right.

Kevin K. McAleenan
Deputy Commissioner
U.S. Customs and Border Protection

Executive Summary

This report provides a summary of CBP Air and Marine Operations' (AMO) efforts to train unmanned aircraft systems (UAS) pilots, including information about the UAS mission and the current level of training. This report also addresses the availability of additional vendor-based training, and the additional resources that may be needed to maintain the current level of pilot training.

Currently, AMO conducts training from several national air security operations centers. It uses a combination of AMO-developed training and vendor-based training. AMO is seeking a Predator B simulator that does not require the use of a UAS. This technology currently does not exist, but is being developed by several manufacturers.



Unmanned Aircraft Systems Pilot Training

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I. Legislative Language

This document was compiled pursuant to the legislative language set forth in the Joint Explanatory Statement and in Senate Report 114-68, which accompany the *Fiscal Year (FY) 2016 Department of Homeland Security (DHS) Appropriations Act* (P.L. 114-113).

The Joint Explanatory Statements states:

UAS Pilots

The bill provides the additional funding requested for UAS pilots, crew, and training. Within 60 days of the date of enactment of this Act, CBP shall provide the Committees a report on UAS pilots and training requirements, as detailed in the Senate report.

Senate Report 114-68 states:

The Committee is concerned that the current shortage of qualified UAS pilots to perform CBP missions may grow in the future as demands for these pilots increase at DOD as well as in the private sector. The Committee believes that CBP could augment its capacity to train UAS pilots on a contract basis and allow for greater use of CBP's UAS assets. The Committee therefore directs CBP to provide to the Committee, within 60 days of the date of enactment of this act, a report describing the need for UAS pilots to perform CBP's missions, the ability of contractors to provide the training required to perform CBP missions, and any additional authorities and resources CBP may need to develop a robust pilot training pipeline.

II. Background

U.S. Customs and Border Protection's (CBP) unmanned aircraft systems (UAS) program contributes to each of Air and Marine Operations' (AMO) four operational core competencies: domain awareness, interdiction, investigation, and national contingency operations. As illustrated in AMO's strategic plan, *Vision and Strategy 2025*, these core competencies directly align with and contribute to CBP and DHS goals and missions.

AMO UAS are operated by 56 pilots and 50 sensor operators. Of these, 35 pilots and 39 sensor operators are assigned primarily to CBP manned aircraft, flying missions in the Source and Transit Zones or along the U.S. borders.

All AMO UAS pilots are required to be licensed by the Federal Aviation Administration (FAA) as commercial pilots. The minimum required flight time for newly hired AMO pilots is 1,500 hours. AMO capitalizes on this high entry-level pilot experience to reduce UAS training time considerably.

A UAS crew consists of a pilot, a sensor operator, and a radar operator. To meet FAA recommended safety standards, UAS crews fly in 2-hour shift rotations, requiring two crews per 8-hour work shift. To meet the myriad of aviation and mission priority demands, and consistent with individual training requirements, AMO UAS crewmembers are scheduled to rotate between manned and unmanned flight duties. When crews are assigned to a unit with both heavy manned and unmanned operations, they will rotate progressively during the month to meet mission needs.

III. UAS Training

A. Current Training

AMO maintains a healthy training pipeline based on the current level of staffing. CBP conducts initial UAS training for all CBP pilots and sensor operators at National Air Security Operations Center-Grand Forks (NASOC-GF). Annually, AMO conducts four 5-week initial training courses, and eight 1-week recurrent training courses. Additionally, because of the challenge associated with conducting radio-controlled landings of an aircraft, all pilots are required to also participate in an annual 4-week UAS landing training course.

In FY 2015, AMO trained 17 pilots at NASOC-GF to fly the UAS. In FY 2016, NASOC-GF is scheduled to provide 277 days of training to 110 crew members, 91 of whom will receive recurrent training, and 19 of whom will receive initial training. AMO previously conducted training for approximately 80 crew members annually.

Various equipment manufacturers and vendors also conduct training for AMO UAS pilots. General Atomics, the manufacturer of the Predator B UAS, conducts pilot and sensor operator training and initial synthetic aperture radar (LynxSAR) training. Northrup Grumman provides training on the Vehicle and Dismounted Exploitation Radar. This training is done at the national air security operations centers.



This combination of vendor and AMO training is sufficient to meet pilot and sensor requirements for current operations. An increase in operations tempo would require AMO to augment with additional vendor-based training.

B. Potential for Vendor-Based Training

The AMO National Air Training Center is presently investigating the availability of additional vendor-based UAS training. Access to a Predator B flight simulator would allow AMO to conduct much of the required pilot and sensor operator training without having to use one of the limited number of UAS assets, satellite support time, or maintenance and satellite communications support personnel. Several vendors have suitable simulators in development with an expected availability as early as summer of 2016. Weather currently impacts as much as 30 percent of the UAS training sorties, a significant drain on crew training and support manning. Not only would the use of a simulator remove the impact of weather from training mission scheduling, but it would

allow the instructor to conduct adverse weather and emergency procedure training without jeopardizing an actual aircraft. Simulator usage also would allow AMO to redirect approximately 800 hours of flight time from training missions to operational missions.¹

¹ This statistic is derived from averaging the total number of training hours conducted for FY 2013 to 2015.

IV. Additional Considerations

Though AMO has a strong training program, the largest challenge that AMO faces is obtaining a sufficient pool of qualified and skilled pilots. It typically takes more than 18 months to complete the pre-employment process, which includes human resources vetting, cognitive testing, interview, physical readiness examination, polygraph testing, and completion of a background investigation.

The marketplace for highly qualified and educated aircrews and mariners is competitive and many potential employees are lost due to the prolonged hiring process and alternate employment opportunities (i.e., other agencies, commercial contractors, or airlines).

V. Conclusion

Each year, AMO flies thousands of hours conducting domain awareness, interdiction, investigation, and national contingency operations. In FY 2015, AMO pilots and sensor operators conducted approximately 688 hours of UAS training. AMO's use of in-house training in combination with vendor-based training has resulted in reduced training times while providing greater operational effectiveness.

The combination of initial, recurrent, and landing training courses resulted in 168 sorties and more than 2,500 landings, demonstrating AMO's commitment to ensuring that adequate aircrew training is provided.

AMO is positioned to provide the necessary UAS pilot and sensor training now and into the future. AMO will continue to reach out to vendors to strengthen its network of industry partners to assist with future training requirements that may surpass AMO's current capacity.

VI. Appendix – List of Acronyms

Acronym	Definition
AMO	Air and Marine Operations
CBP	U.S. Customs and Border Protection
DHS	Department of Homeland Security
FAA	Federal Aviation Administration
FY	Fiscal Year
NASOC-GF	National Air Security Operations Center – Grand Forks
UAS	Unmanned Aircraft System