Overview

• What Unmanned Aircraft Systems (UAS) the US Department of Defense (DOD) Flies
• How much
• How we train
• Summary
This is DoD UAS
...and this!
• Group 1 - UAS typically less than 20 pounds in weight; normally operate below 1200 feet above ground level (AGL) at speeds less than 250 knots (Raven)

• Group 2 - UAS typically are in the 21 – 55 pound weight class; normally operate below 3500 feet AGL at speed less than 250 knots (Scan Eagle)

• Group 3 - These UAS weigh more than 55 pounds, but less than 1320 pounds. They normally operate below 18,000 feet mean sea level (MSL) at speeds less than 250 knots (Shadow, Integrator)

• Group 4 - These UAS weigh more than 1320 pounds; normally operate below 18,000 feet MSL at any speed (Fire Scout, Predator, Gray Eagle)

• Group 5 - These UAS weigh more than 1320 pounds; normally operate higher than 18,000 feet MSL at any speed (Reaper, Global Hawk/Triton, UCLASS)
DoD Unmanned Aircraft Inventory

As of January 1, 2015
DoD UAS Flight Hours
(By Department, By Fiscal Year)

*Does not include Group 1 UAS
**As of 1 Jan 2015
• Per CJCSI 3255.01, DOD UAS pilots/operators will be trained to one of four basic UAS qualification (BUQ) levels:
  – BUQ-I: VFR in Class E, G, combat/restricted airspace < 1200 AGL
  – BUQ-II: VFR in Class D, E, G, combat/restricted airspace < 18,000 MSL
  – BUQ-III: VFR in any airspace < 18,000 MSL
  – BUQ-IV: All weather in any airspace up to FL 600
• DoD trains all UAS pilots/operators in formal, documented and repeatable training programs
• Maintenance training also done in formal programs, where applicable or appropriate

The term “Pilot” or “Operator” represents cultural differences between the Services and does not address a level of training.
DOD UAS Training Programs
Air Force

AF Pilot
298 Hours
- Contact
- Dual
- Solo
- Cross country (w/solo)
- Night
- Simulated/Actual IMC
85 Hours

AF UAS Pilot
297 Hours
- Contact
- Dual
- Solo
- Cross country (w/solo)
- Night
- Simulated/Actual IMC
40 Hours

PPL w/ Instrument Rating
70 Hours
- Basic flight maneuvers
- Dual
- Solo
- Cross country (w/solo)
- Night
- Simulated/Actual IMC
40 Hours

TOTAL TIME
FLIGHT + SIM
170 Hours

- Navigation
- Dual
- Solo
- Instruments
- Approaches
- Simulated/Actual IMC

166 Hours

- Navigation
- Dual
- Instruments
- Approaches
- Simulated/Actual IMC
- RPA sorties

95 Hours

- Navigation
- Dual
- Solo
- Instruments
- Approaches
- Simulated/Actual IMC
DOD UAS Training Programs
Army

UAS Operator Training Pipeline

**PHASE I**

<table>
<thead>
<tr>
<th>COMMON CORE</th>
<th>9 WKS 2 DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inprocessing</td>
<td>1 Day</td>
</tr>
<tr>
<td>RSTA-PO</td>
<td>2 WK 2 DAYS</td>
</tr>
<tr>
<td>RSTA-I</td>
<td>2 WK 2 DAYS</td>
</tr>
<tr>
<td>UGS</td>
<td>4 WK</td>
</tr>
<tr>
<td>AMPS</td>
<td>1 Day</td>
</tr>
<tr>
<td>ELAS, AMB, STANDS</td>
<td>1 Day</td>
</tr>
</tbody>
</table>

Complies with CFR (FAR) 61.105, Aeronautical Knowledge, resulting in authorizations/ testing of the Private Pilot Knowledge Test (PPKT)

**PHASE II** In Go-to-War Aircraft

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHADOW</td>
<td>12 WKS 3 DAYS</td>
</tr>
<tr>
<td>HUNTER</td>
<td>12 WKS 4 DAYS</td>
</tr>
<tr>
<td>Gray Eagle</td>
<td>25 WKS 71.0 FLT HRS</td>
</tr>
</tbody>
</table>

- **97.0 HRS**
- **95.0 HRS**
- **131.0 HRS**

Instrument training, Graduates of the NAS Operations Module will be:
- trained to fly in IMC in the NAS
- able to pass the FAA Instrument Written Exam

Cleared for Open Publication
12-S-0493
<table>
<thead>
<tr>
<th>MQ-4 Triton Operator Training</th>
<th>MQ-8 Fire Scout Operator Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mission Training</strong></td>
<td><strong>Mission Training</strong></td>
</tr>
<tr>
<td>- Previous qualified P-3/P-8</td>
<td>- H-60 pilots and Aircrew trained for MQ-8 AVO and MPO roles</td>
</tr>
<tr>
<td>crewmembers</td>
<td>- AVO training will be provided by FRS and Wing Weapons Schools at the three training sites (NAS North Island, NAS Jacksonville/Mayport, and NAS Norfolk).</td>
</tr>
<tr>
<td>- Air Vehicle Operator (AVO),</td>
<td></td>
</tr>
<tr>
<td>Mission Payload Operator</td>
<td></td>
</tr>
<tr>
<td>(MPO), and Tactical</td>
<td></td>
</tr>
<tr>
<td>Coordinator (TC) training</td>
<td></td>
</tr>
<tr>
<td>at Fleet Replacement</td>
<td></td>
</tr>
<tr>
<td>Squadron (FRS).</td>
<td></td>
</tr>
<tr>
<td><strong>Schedule</strong></td>
<td><strong>Schedule</strong></td>
</tr>
<tr>
<td>- AVO = 57 days, MPO and TC</td>
<td>- AVO est 5 weeks, MPO est 3 weeks</td>
</tr>
<tr>
<td>= 49 days</td>
<td></td>
</tr>
<tr>
<td><strong>Curriculum</strong></td>
<td><strong>Curriculum</strong></td>
</tr>
<tr>
<td>- Courseware combination of</td>
<td>- Courseware combination of Class</td>
</tr>
<tr>
<td>Classroom, Computer, and</td>
<td>room, Computer, and Web Based Training</td>
</tr>
<tr>
<td>Web Based Training</td>
<td>- Mission System Trainers</td>
</tr>
<tr>
<td>- Mission System Trainers</td>
<td>- Standalone Training Devices</td>
</tr>
<tr>
<td>- Integrated into Mission</td>
<td>- Proficiency systems (Laptops)</td>
</tr>
<tr>
<td>Control System</td>
<td></td>
</tr>
<tr>
<td>- Stand alone version located</td>
<td></td>
</tr>
<tr>
<td>at FRS</td>
<td></td>
</tr>
</tbody>
</table>
• 80 hours / 10 days
  – Classroom
    • 20.0 hours
  – Flight P.E. and Simulator
    • 60.0 hours

1989, 11 lbs
2003, 4.2 lbs
2007, 1.0 lbs
# DOD UAS Training Programs

## Army Maintenance

### MOS TRAINING

#### 15E UAS Repairer Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Army Aviation</td>
<td>21 hrs</td>
</tr>
<tr>
<td>Shop and Flight Line Practices and Procedures</td>
<td>51 hrs</td>
</tr>
<tr>
<td>Army Aviation Forms and Records</td>
<td>36 hrs</td>
</tr>
<tr>
<td>Basic Electronics Training</td>
<td>144 hrs</td>
</tr>
<tr>
<td>Shadow Emplacement/Displacement</td>
<td>72 hrs</td>
</tr>
<tr>
<td>Maintenance</td>
<td>72 hrs</td>
</tr>
<tr>
<td>Flight Operations</td>
<td>72 hrs</td>
</tr>
<tr>
<td>Fault Isolation</td>
<td>72 hrs</td>
</tr>
<tr>
<td>Flight Line Operations</td>
<td>38 hrs</td>
</tr>
<tr>
<td>Field Training Exercise</td>
<td>120 hrs</td>
</tr>
</tbody>
</table>

**17 WKS**

### ASI TRAINING

<table>
<thead>
<tr>
<th>System</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td><strong>HUNTER (U3)</strong></td>
<td>10 WKS</td>
</tr>
<tr>
<td><strong>Gray Eagle (U5)</strong></td>
<td>18 WKS</td>
</tr>
</tbody>
</table>

**27 WKS**

**35 WKS**

**35 WKS**
Summary

- Global UAS operations will continue at a sustained or increasing pace – mostly sUAS platforms
- DOD Training programs and standards are purpose built to meet airspace requirements
- Other requirements maturing
  - SAA Technology
  - Airworthiness
Questions?
Ground Operations
Air Force Predator/Reaper

Nose Camera Image

Taxi Map (next page)
Ground Operations
Air Force Predator/Reaper

Aircraft Position

*Image blur is due to cropping and expansion from previous slide
Ground Operations
Air Force Predator/Reaper

Being Marshaled
* Sample Pattern overlay (simulated)
Information Overload
Air Force Predator/Reaper