

Colorado

Division of Fire Prevention and Control

Discussion for Night Vision Goggles

27 - 28 January 2016

Rifle, CO

Night Operations Summit



AVIATION SPECIALTIES UNLIMITED

Bottom-line Up Front

- ASU seeks to provide a clearer understanding of the way forward for NVGs and Night Fire Fighting
 - Why NVGs
 - Aircraft Modifications
 - Training
 - NVG Service



Agenda

- Overview of ASU
- NVGs in Civil Aviation
- NVGs and Night Firefighting
- NVG Program Implementation
- White Phosphor NVGs
- Wrap-up



ASU Introduction



- Industry pioneers, founded in 1995 as a night vision provider for civil, public use and military operators
- Headquartered in Boise
 - With a service center in Bogota, Colombia supporting US and Colombian counter narco-terrorism efforts
- A global leader in night vision
 - Sales of 20,000 NVGs (ground and aviation)
 - Service & repair of NVGs
 - Tech transfer to establish repair centers
 - Training – flight and continued airworthiness
 - Aircraft modification – in Boise or at the customers facility
 - With a customer base in 50 countries
- FAA 145, 141, 135 (and 133/137) certificates
- Approaching 50 employees
- Facility
 - 15,000 square feet in hangar space
 - 4,000 square feet in manufacturing area
 - 8,000 square feet in administrative office space



NVG Lighting Solutions

- Customized design engineering
- FAA Parts Manufacturing Authority
- FAA Part 145 field installation
- FAA & EASA certification
 - STC and supporting documentation
- Return to service
- Field maintainability

ASU will complete its 1,000th aircraft modification in early 2016



NVG Training Solutions

- Part 141 & 135 Initial, Advanced, Re-currency
 - Pilot, crewmember, instructor, maintainer
- In Boise, Idaho, USA
 - Fixed-wing (Cessna 206); Rotary-wing (Bell 206)
 - Vast training area: mountains & high desert areas
- In the customers aircraft
 - In their training area

3,800 trained
crewmembers



NVG Hardware and Maintenance

- ITT & L-3 Aviation NVG
 - Over 5,500 aviation NVGs placed in service
- Hoffman Test Equipment
- ASU Common & Special Tooling
- Maintain, repair & recertify
 - Over 2,000 NVGs annually
 - Via our Part 145 repair station
- Established dozens of repair stations
 - Across the America's and Europe
- ASU also intends to introduce an improved mount & power source assembly in 2016
 - To be approved via TSO or PMA



NVGs in Civil Aviation

- Helicopter Air Ambulance
- City, County & State
 - Law Enforcement
 - SAR
 - Fire
 - Pest Control / Mosquito / Natural Resource
- Other
 - Corporate Part 91
 - Commercial Part 135
 - Agricultural Part 137



NVGs and Night Firefighting

- Why Night Vision Goggles?
 - They allow us to see...



Farm House in Dombas Norway





NVGs and Night Firefighting

- Why Night Vision Goggles?
 - They allow us to see...
 - *Typically:*
 - Cooler temperatures
 - Higher humidity
 - Lower winds
 - Better aircraft performance
 - Better retardant performance / persistence



NVGs and Night Firefighting

- Why Night Vision Goggles?
 - They allow us to see...
 - @40% increase in potential fighting fire time
 - 15 August – Colorado Springs, CO
 - » SR: 06:13 / SS: 19:53 – @14.0 hours of daylight
 - » @10 hours of darkness
 - » Expands Initial Attack window
 - Increased asset utilization



Implementation

- Aircraft survey and Program Quote
- Purchase Order
 - NVGs
 - Aircraft modification
 - STC
 - Training
 - Operations and Training manuals
 - Academic Training
 - Flight Training
 - NVG Inspections and Servicing



About ASU Supplied NVGs

- Normally sold with ASU NVIS Lighting System
- ASU kits the NVG
 - Binocular comes from L-3
 - DO-275 statements of conformance for green/white
 - A-Test data sheet for system & tube
 - Power source & base mount come from ITT
 - ASU manufactures (or purchases) the counter weights and mount adapter assembling the mount in-house
 - ASU performs 100% testing on all components, twice
 - Initial acceptance and final inspection prior to shipment
- ASU maintains a listing of FAA approved NVGs
 - App. A & B of our Flight Manual Supplement (as part of the STC)
- ASU services and repairs NVGs
 - Factory trained/certified by L-3 and ITT



White Phosphor

- Introduced by L-3 to US Special Forces
 - Exelis (ITT) will introduce in 2015
- Change of phosphor material used on the phosphor screen (from P-43 to P-45)
 - Phosphor provides more of a b/w image
 - More pleasing to the eye – provides better (sharper) image clarity
 - P45 has a faster response time
- Still packaged in an MX-10160 image tube
 - Form-fit-function still the same & interchangeable
- L-3 has provided statements of conformance (DO-275) for both the image tube and the M949 system
- DO-275 is (intentionally) silent on phosphor type
- L-3 M949 with white phosphor tubes has been evaluated by FAA
- L-3 M949 with white phosphor is superior in performance
 - 28 minimum SNR, 2000 minimum Photocathode Response, 15,000 reliability
 - Industry response has been overwhelming
- ASU will retrofit legacy, lower performing NVGs – both ITT and L-3 – to Class B configuration and white phosphor image tubes – providing operators with exceptional performance



Wrap-up

- *NVGs dramatically improve night firefighting situational awareness*
- Best NVGs available in the world
- Proven track record in night firefighting
- Clear path to implement an NVG program
- Broad industry base for operator support:
 - Aircraft modification
 - Crew training
 - NVG service

