

# NSWC Crane

## “Harnessing the Power of Technology for the Warfighter”



# Miniature Red Dot Sight

8 May 2007

Presented by Mr. Rick Tousignant,  
MRD Project Manager





# Presented to NDIA Small Arms Symposium



# MRD-PIP Purpose

**Requirement:** The MRD-PIP system is intended to improve and standardize existing small COTS “mini” red dot products for SOF use.

**MRD Mission:** The MRD-PIP is intended to provide a primary day & low light close quarters battle capability when used in conjunction with “non-CQB” magnified optics (ACOG, Sniper Rifles, etc.) and sights equipped with iron sights only.

**Maturity of Technology:** The MRD-PIP is an acquisition project. This project does not seek to conduct basic research, develop the technology base, or explore preliminary concepts that require long periods of research and development. Instead, this project effort seeks to rapidly develop, test, and field a system in a timeframe relevant to current conflicts. This project seeks development efforts that are based on commercial-off-the-shelf (COTS) and non-developmental items (NDI) that require only minor System Development and Demonstration, such as system miniaturization, ergonomic improvements, and environmental hardening to become technically qualified and operationally suitable for combat. Products that do not reflect either working prototypes or commercial items with modifications are not acceptable.

# MRD-PIP Background

# MRD Background

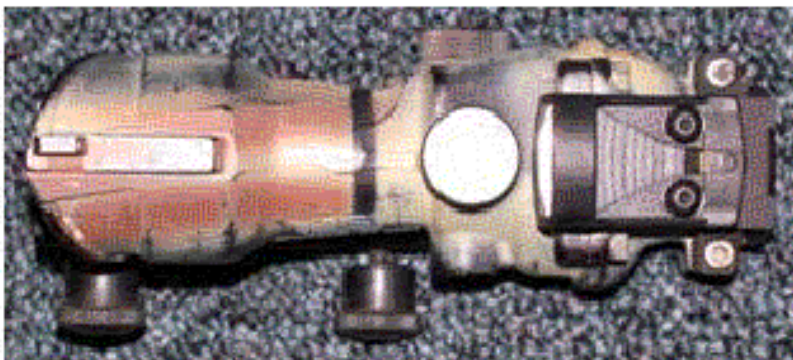
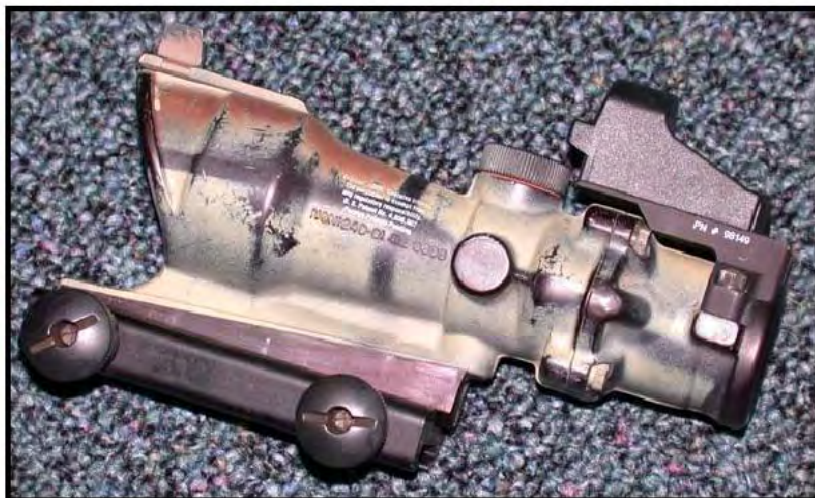
- ➡ 1990's: A small reflex sight was mounted on a prototype ACOG
- ➡ Prior to 2000: Competition Shooters experiment with combination sights
- ➡ 2000: SOPMOD Experiments with Fabricated Prototype





- ➡ Early 2002: Select SOF units experimented with MRD on SIG P226 slides with limited success.
- ➡ Mid 2002: Select SOF units made a 30mm Scope ring mount utilizing the MRD for Snipers.
- ➡ Mid 2002: ACOG mount prototype used with considerable success
- ➡ 2003: Commercial ACOG MRD Mount Introduced.
- ➡ 2005 – Current: Thousands Now Purchased, Thousands more in demand

## Common configuration ACOG 4X W/ MRD



# MRD Background

**SU-230/PVS**



**ACOG 4X**



## Common Configurations



**Mk12 type scope.**

## Issues

- ➡ **Ruggedness**
- ➡ **Control of Red Dot**
- ➡ **Cover vs. On/Off Switch**
- ➡ **Ease of Adjustment**
- ➡ **Waterproofing**
- ➡ **Battery Change**

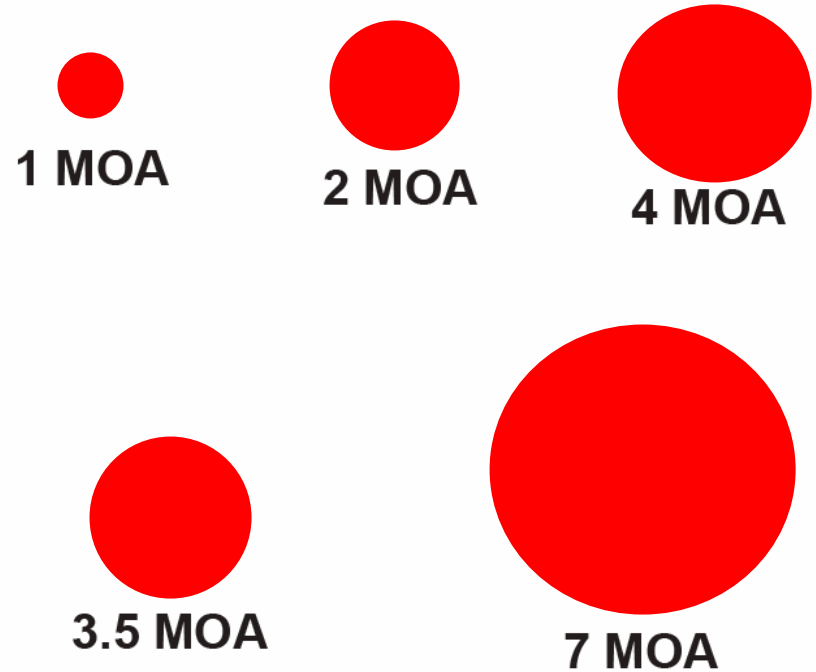
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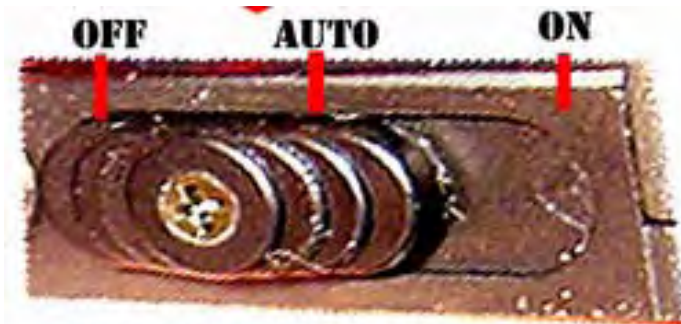
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## Issues

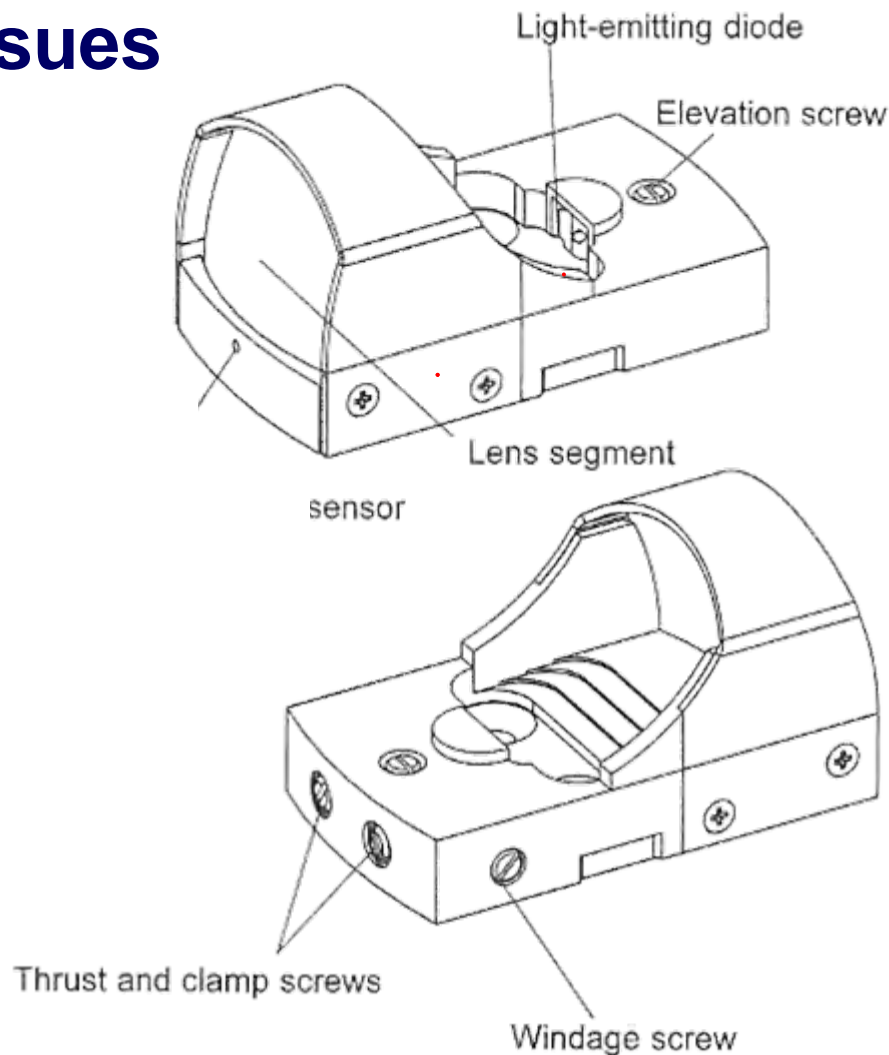
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**3-POSITION SWITCH**

## Issues

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- ➡ Waterproofing
- ➡ Battery Replacement





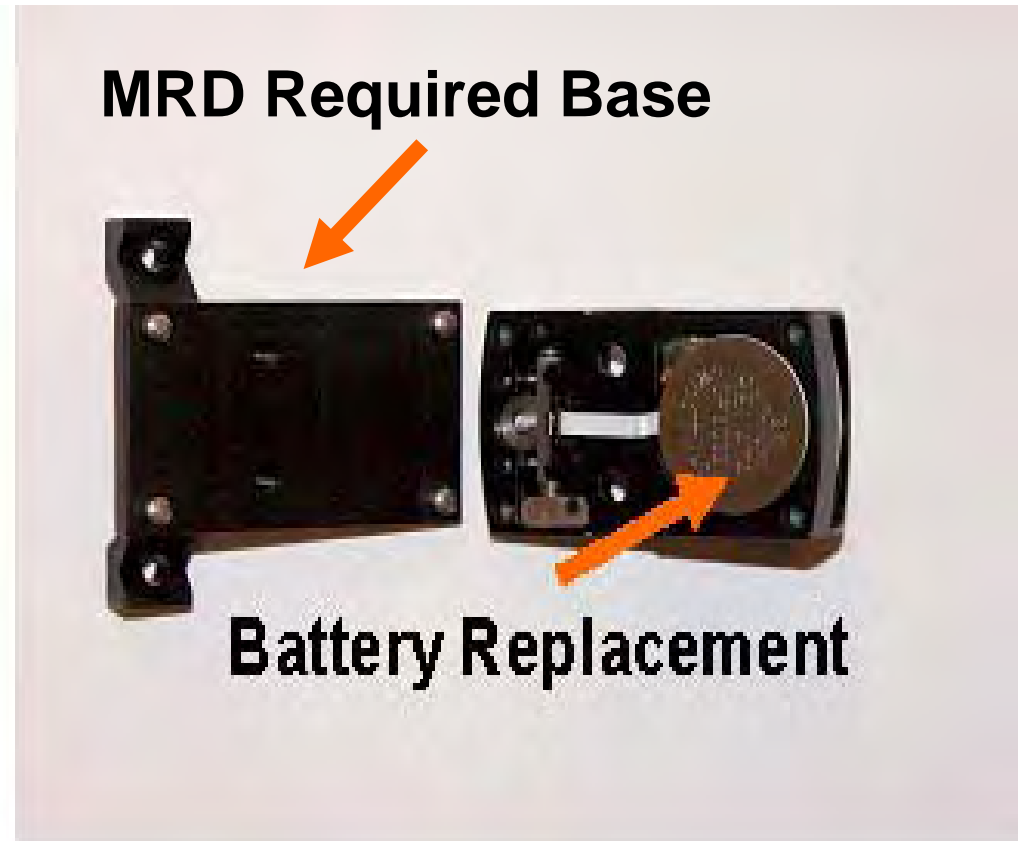
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## Issues

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## ➡ THRESHOLD Sights

➡ SU-230/PVS

➡ SU-237/PVS

➡ Legacy (NSN) ACOG 4X

➡ AN/PVS-17A

## ➡ OBJECTIVE Sights

➡ All Sniper Rifle Scopes

➡ Future Clip-On Night Vision Devices



## ➡ THRESHOLD host weapons

- ➡ M4A1 Carbine

- ➡ M4A1 Carbine performing mated with the M203 Grenade Launcher

- ➡ EX-16 SCAR Light, EX-16 w/EX-13 ELGM Attached

- ➡ EX-17 Mod O SCAR Heavy, EX-17 w/ EX-13 ELGM Attached

## ➡ OBJECTIVE weapons

M3 MAWS, M14 Rifle, AT4, AK 47, MK 11 Rifle, M40, 300 WinMag Sniper Rifle, MK 12 Rifle, M72 LAW, M2, M16 Series Rifle, M88 PIP Sniper Rifle, Remington 870 Series Shotgun, Mossberg 500 Series Shotgun, MK 46 LMG, MK 48 LMG, M240 MG, M249 MG, M60 MG, MK 43 MG, Mk 19 MG, and the M2 MG.



# MRD-PIP Acquisition Process and Schedule



- ➡ **Full, Fair and Open – Government/Industry Collaboration**
- ➡ **Developmental leading to Procurement**
  - ➡ **Independent Research and Development**
  - ➡ **Proposals Submitted Before Test Samples**
  - ➡ **18 Test Samples per Proposal**
  - ➡ **One-Stage Down-select**
  - ➡ **Engineering Changes**
  - ➡ **Production**
- ➡ **Firm Fixed Price, Indefinite Delivery Indefinite Quantity**
- ➡ **“Best Value” Source Selection**

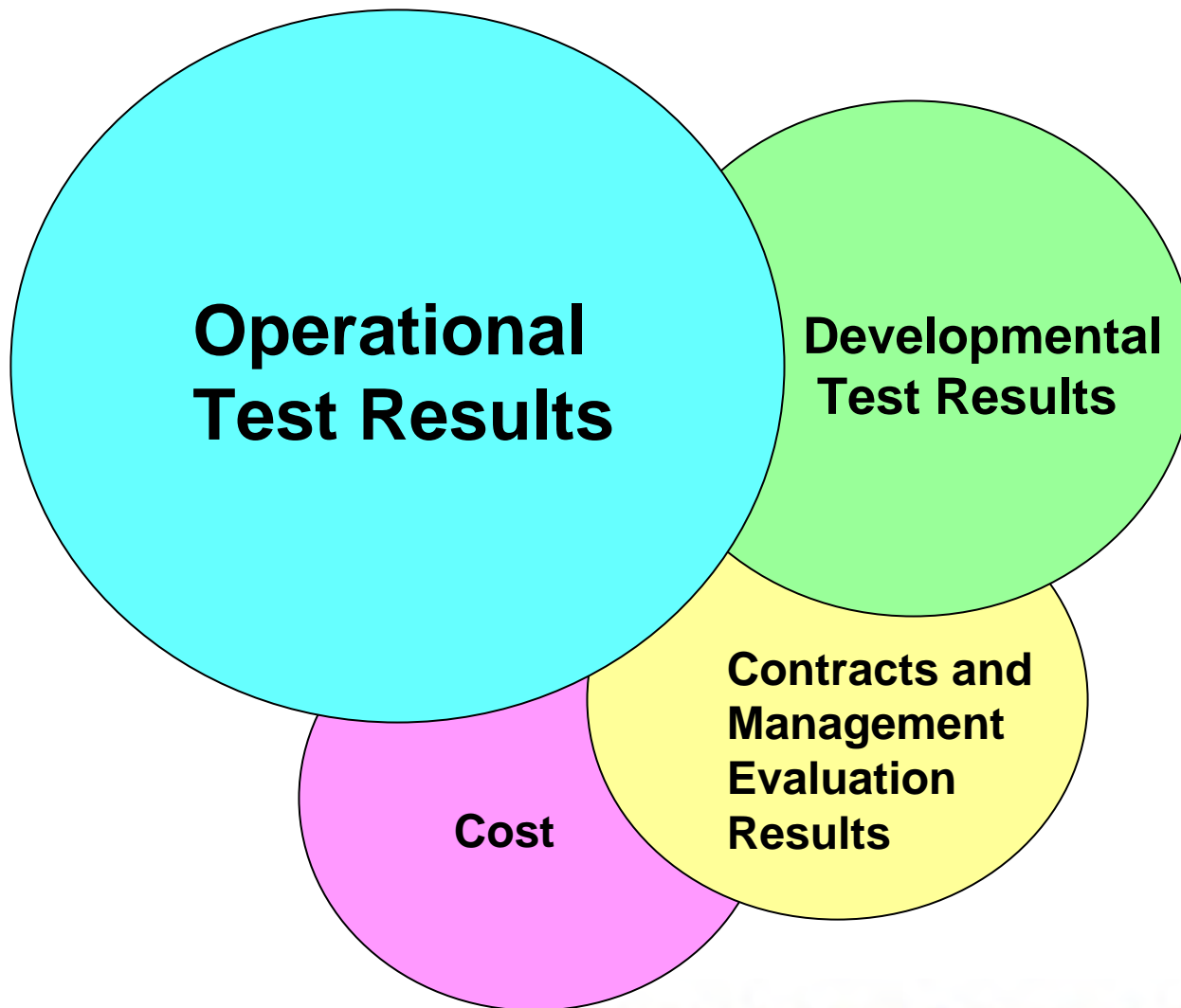


## Probable Order of Importance

- ➡ **Technical**
  - ➡ **Operational**
  - ➡ **Developmental**
- ➡ **Contracting, Past Performance, and Management**
- ➡ **Price**

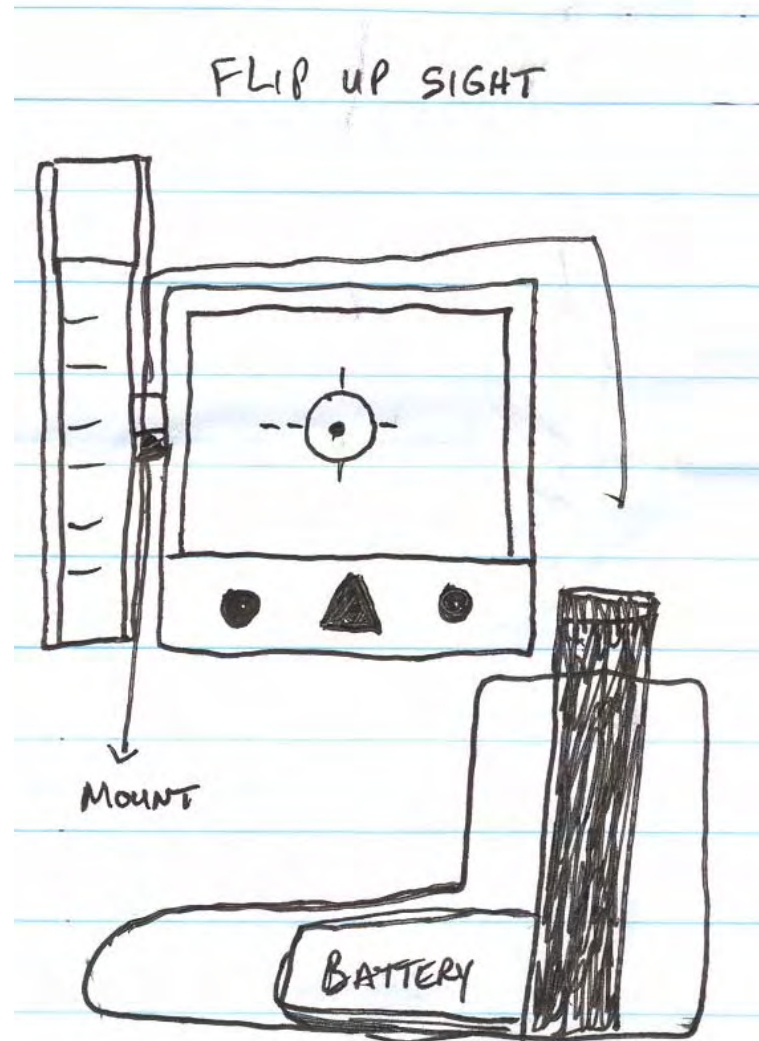
Solicitation is Governing Document!!!

# Source Selection Probable Importance

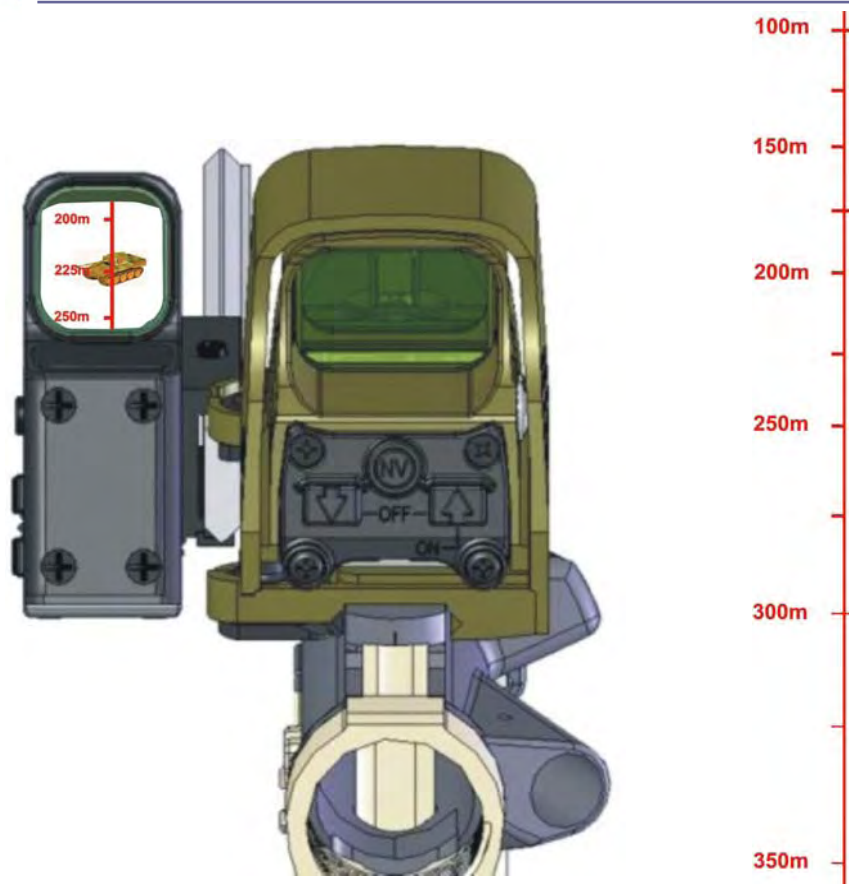




# Holographic Grenade Launcher Sight



# Holographic Grenade Launcher



Holographic reticle projected to the target plane

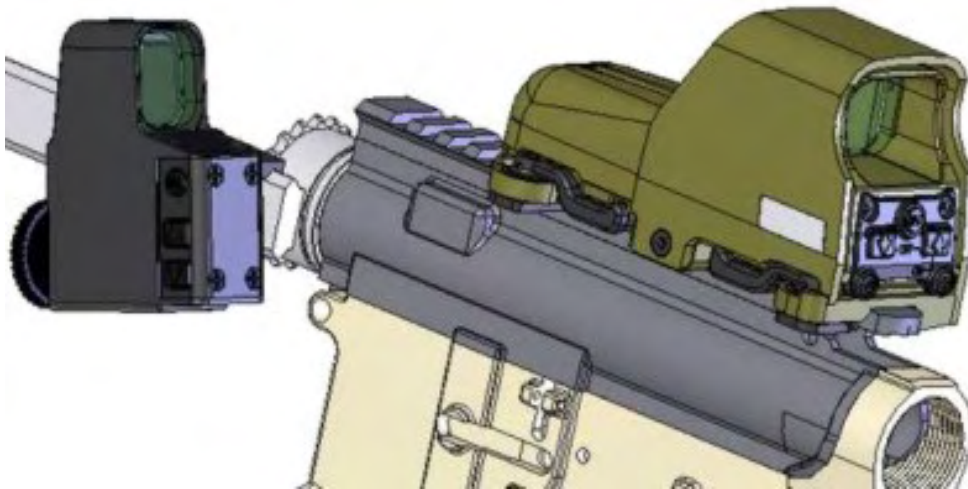
Holographic GL Sight

Concept Image Courtesy L-3 Communications EOTech, Inc. Ann Arbor, MI



# Holographic Grenade Launcher

GL Sight with  
Inclinometer module



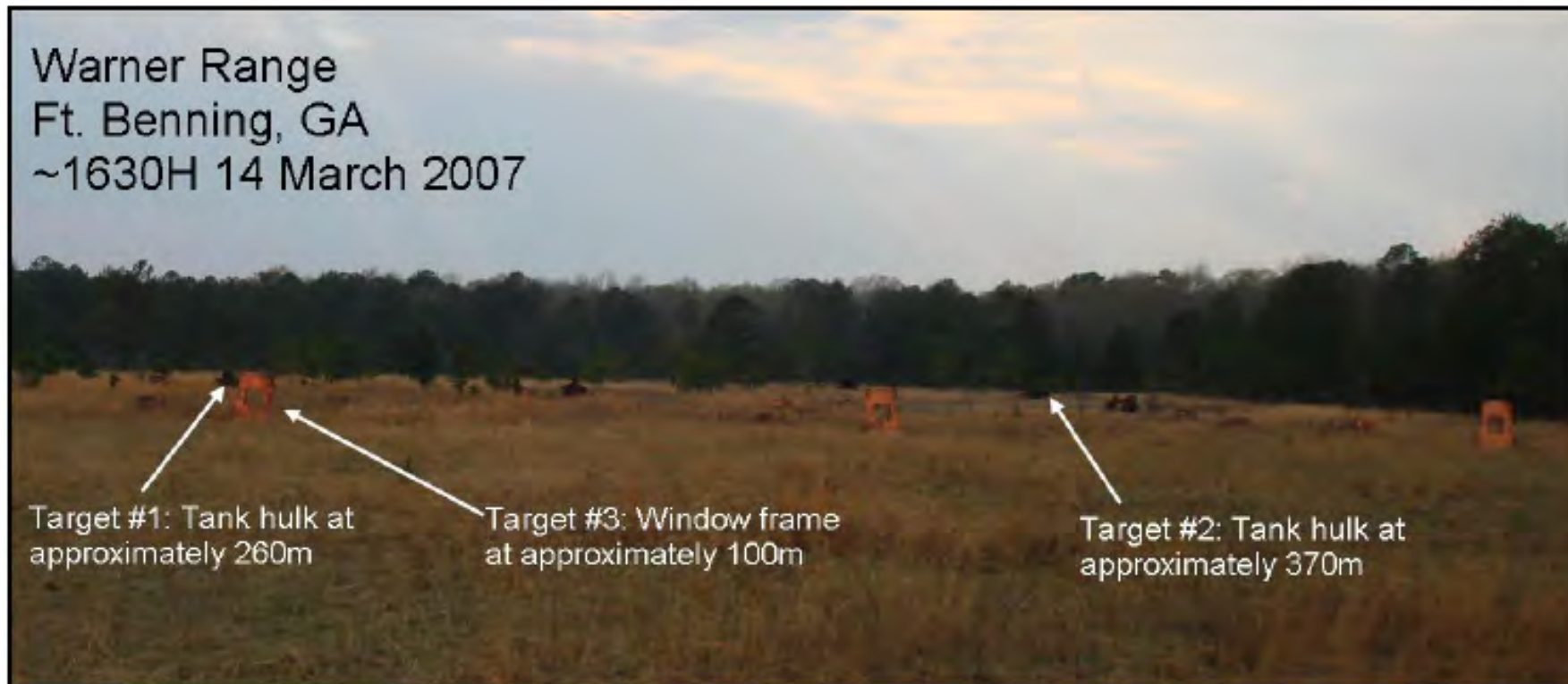
Mounting of Holographic GL sight

Concept Images Courtesy L-3 Communications EOTech, Inc. Ann Arbor, MI

# Holographic Grenade Launcher



Simulated View of holographic GL sight.  
Reticle is parallax-free. Eye position not important as long as reticle is visible within the window.





Concept demonstration prototype fabricated with available parts

## The Holographic Grenade Launcher Sight with an inclinometer Module:

- Provides higher range resolution (<10m) when needed
- Can aim weapon by using the gun barrel to align weapon in azimuth and the inclinometer readout to set elevation angle
  - Allows indirect fire at hyper-elevation angles
  - Allows aiming in awkward position where the eye cannot be placed behind the aiming sight



**Rick Tousignant**

**Miniature Red Dot/Holographic Grenade  
Launcher Sight Project Manager**

**NSWC Crane**

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