

# BRIMSTONE

## The Royal Air Force's New Precision Strike Weapon



Squadron Leader Jim Mulholland  
31 Sqn's Weapons Leader



# Aim

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- Leave you with a lasting impression of the capability of the Royal Air Force's latest precision strike weapon
- **BRIMSTONE.**



# Classification

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# Scope

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- Capability Gap
- BRIMSTONE
- Evaluation
- The Future
- Summary.



# Scope

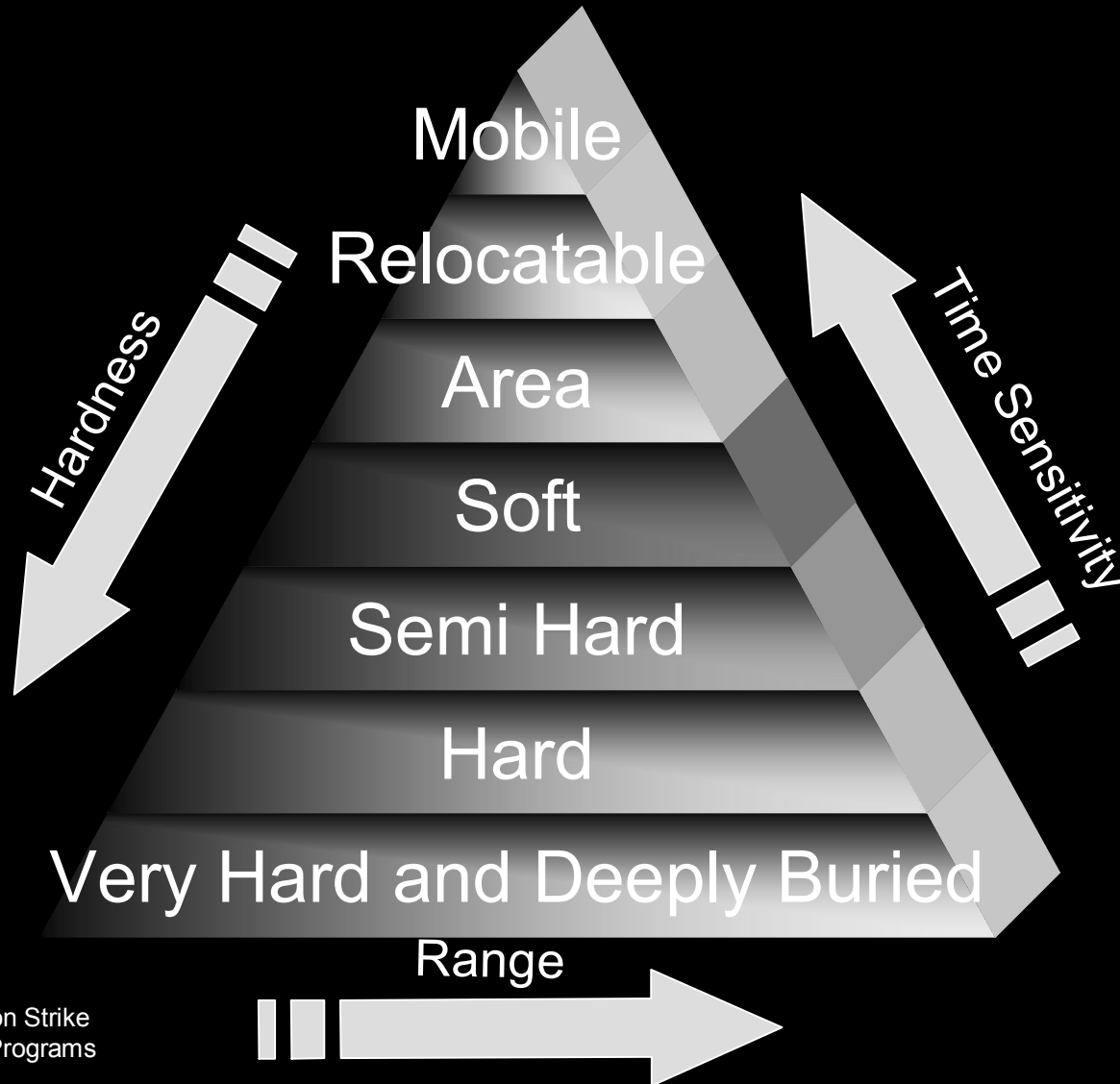
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- Capability Gap.

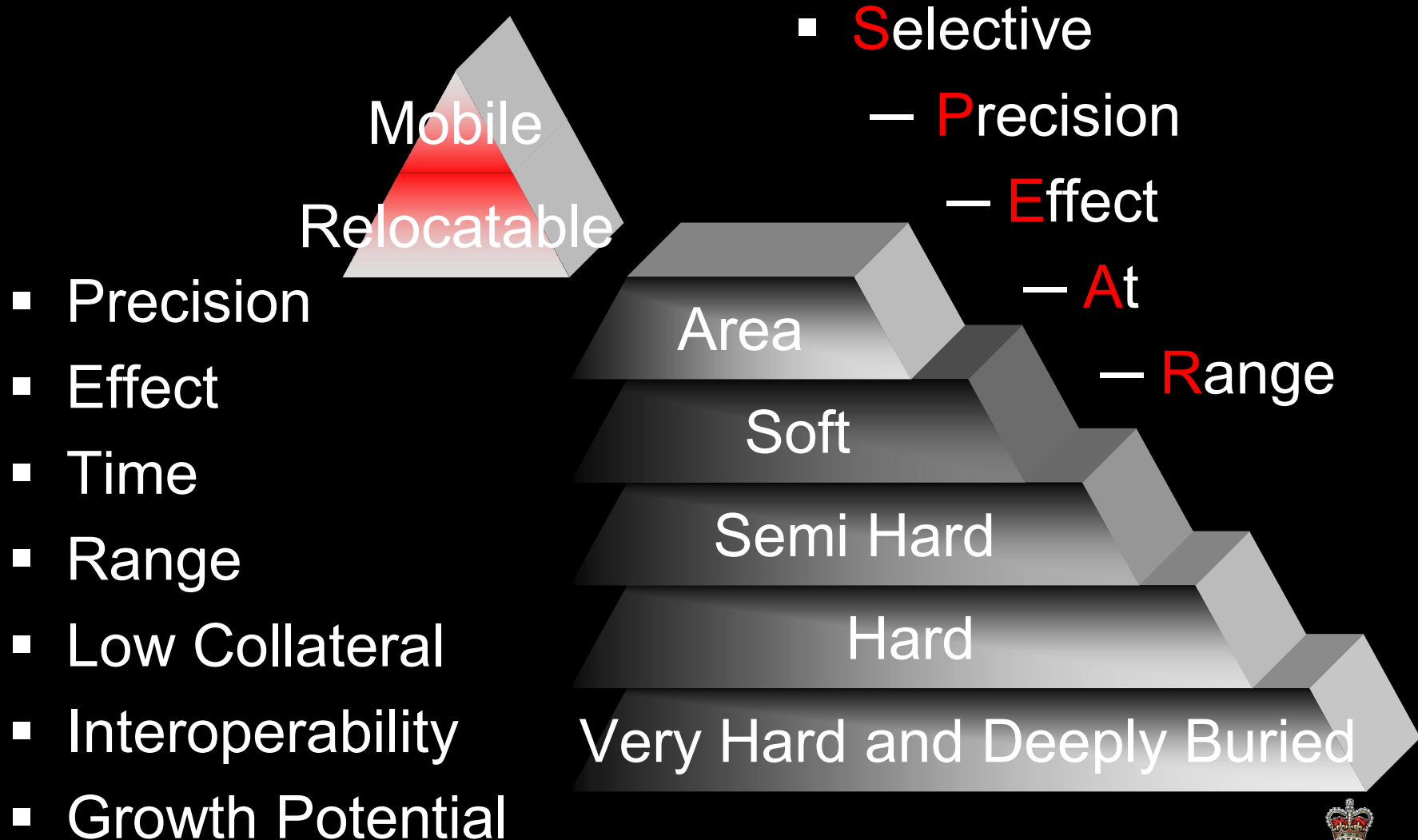


# Capability Gap

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# Capability Gap





# Capability Gap

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- Precision ✓ Yes
- Effect ✓ Yes
- Time ✓ Yes
- Range ✓ Yes
- Low Collateral ✓ Yes
- Interoperability ✓ Yes
- Growth Potential ✓ Yes.



# Scope

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- Brimstone:
  - Requirements
  - Overview (seeker, missile)
  - Employment
  - Attack Mode
  - Video Simulation.



# Brimstone Requirements

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- Minimum Crew Workload
- Autonomous / Fire and Forget
- Multiple Kills per pass
- All weather / 24 Hour operation
- Modular to ease growth potential
- Currently highly effective against a wide variety of:

APCs



ADUs



SPGs



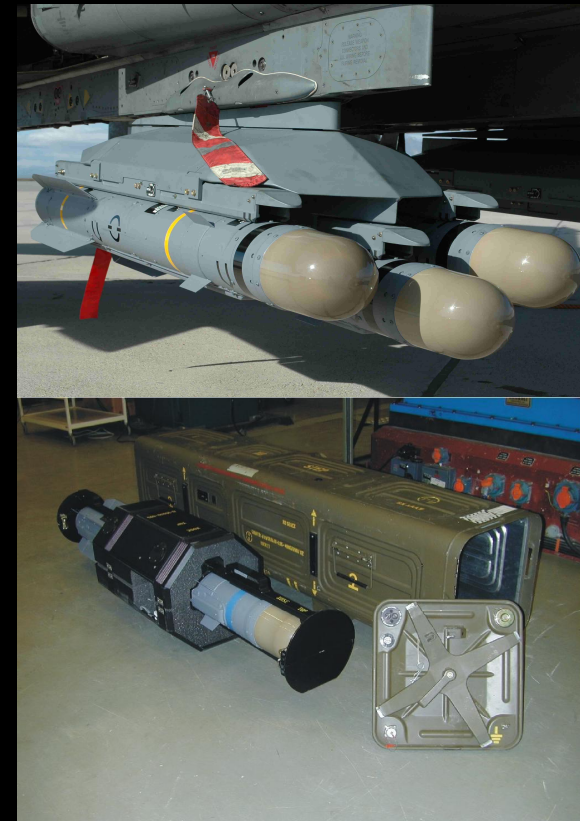
MBTs



# Brimstone

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- Weapon Comprises:
  - An All Up Round from the container
  - A re-useable 3 rail 1760 launcher
  - Up to 3 Missiles per Salvo
  - Up to 12 Missiles per jet
  - Built In Test.



# Brimstone

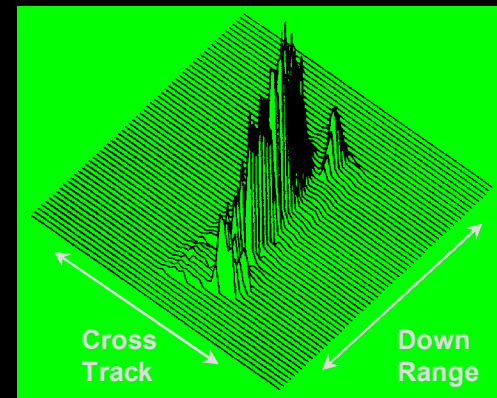
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- Designed to:
  - Defeat armoured targets
  - Launch from high speed fixed wing
  - Multiple or single missile firing
  - Supersonic cruise
  - 3 attack scenarios.



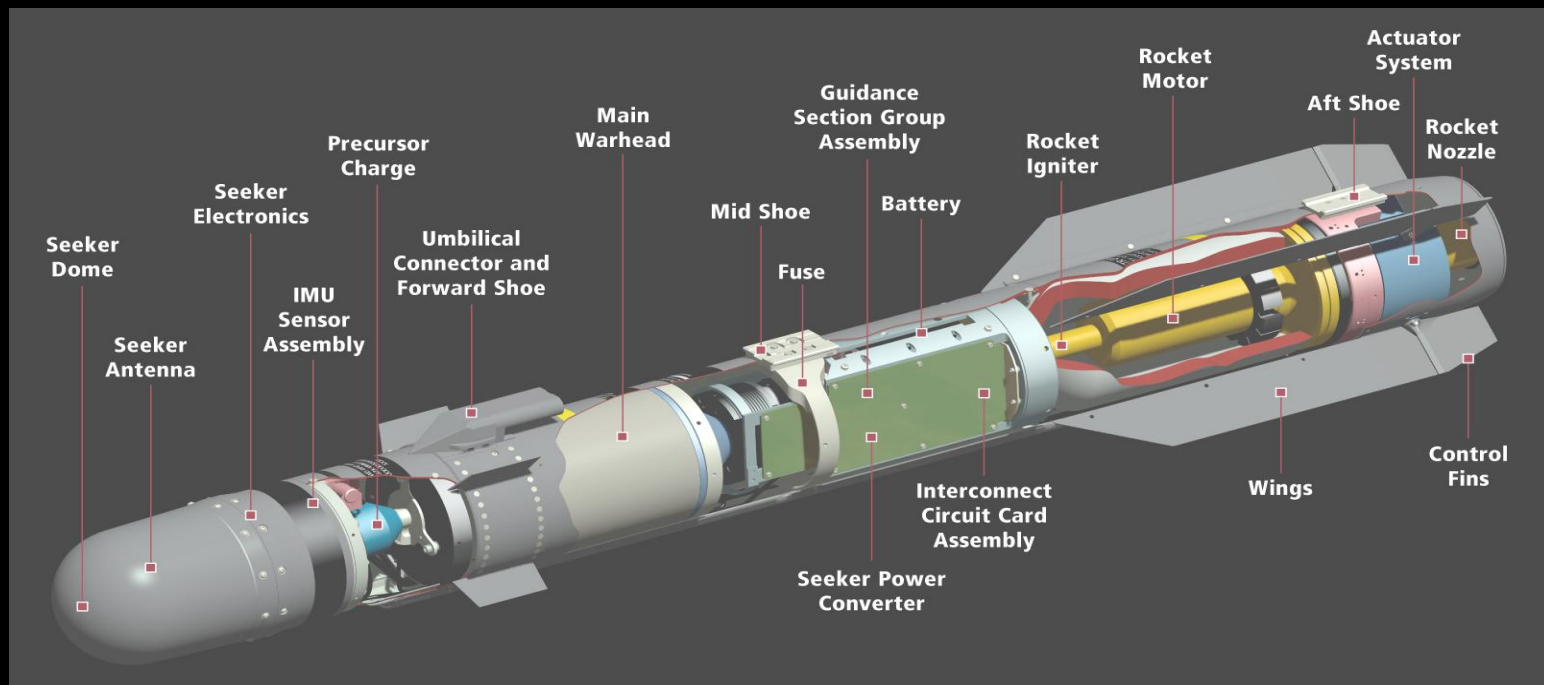
# Brimstone Seeker

- Active 94 GHz FMCW radar 'push-broom'
- Autonomous / Fire and forget capability
- All weather / night
- Terrain avoidance
- Real time target detection and classification.



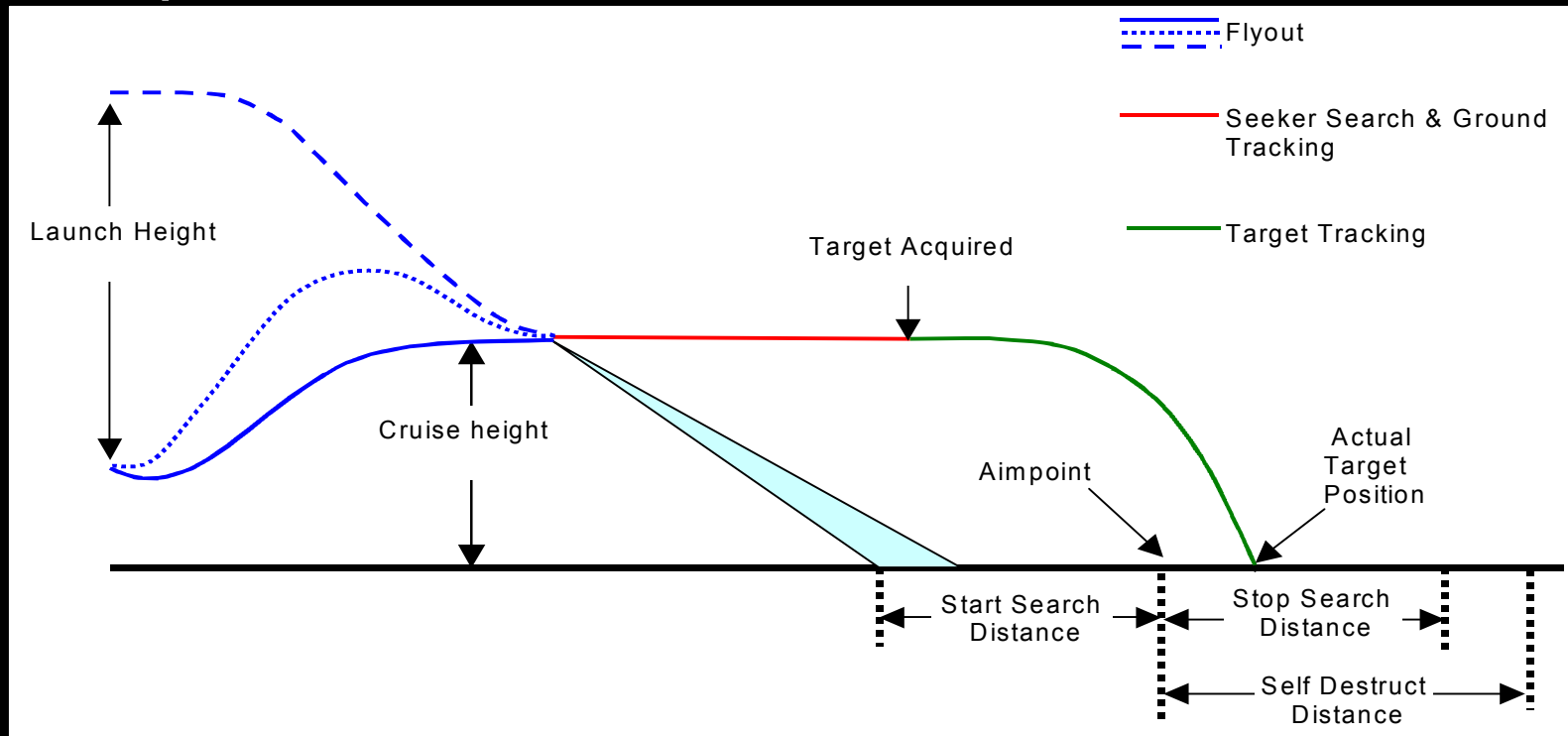
# Brimstone Missile

- Mass, electrical and mechanical external interfaces are all similar to the Hellfire Missile
- Operation in a high speed environment .



# Brimstone Employment

- Manual data entry - future
- Target position (Lat, Long, Alt), start search, stop search, self destruct, attack mode.

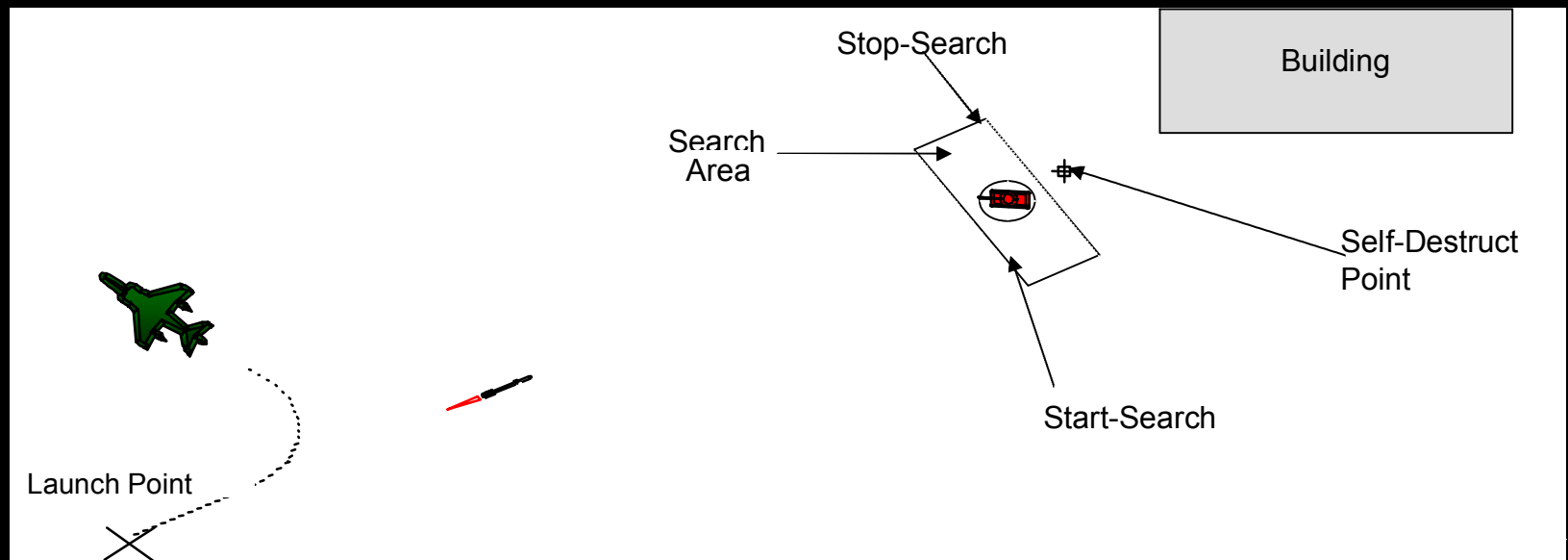




# Brimstone Attack Mode

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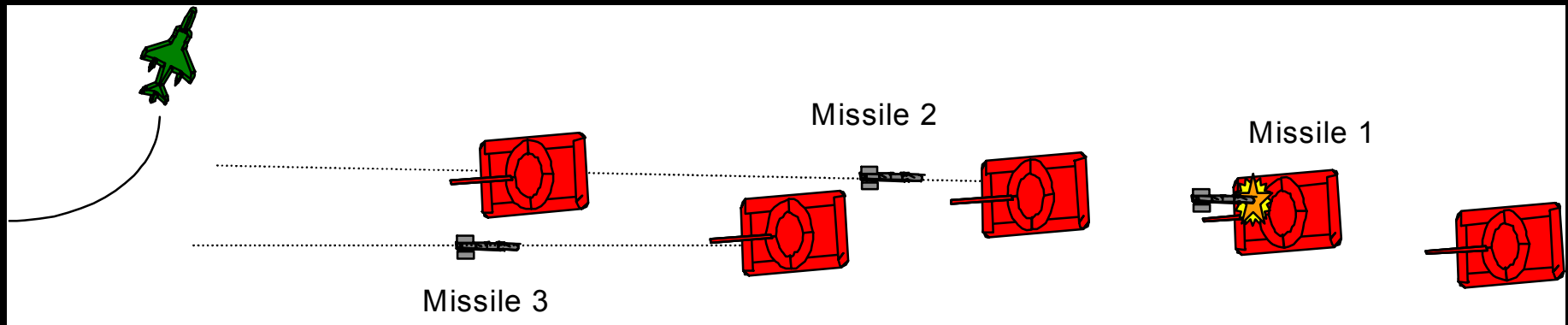
- Point Attack:
  - Select number of missiles
  - Search in the same area – self destruct
  - Direct or indirect.



# Brimstone Attack Mode

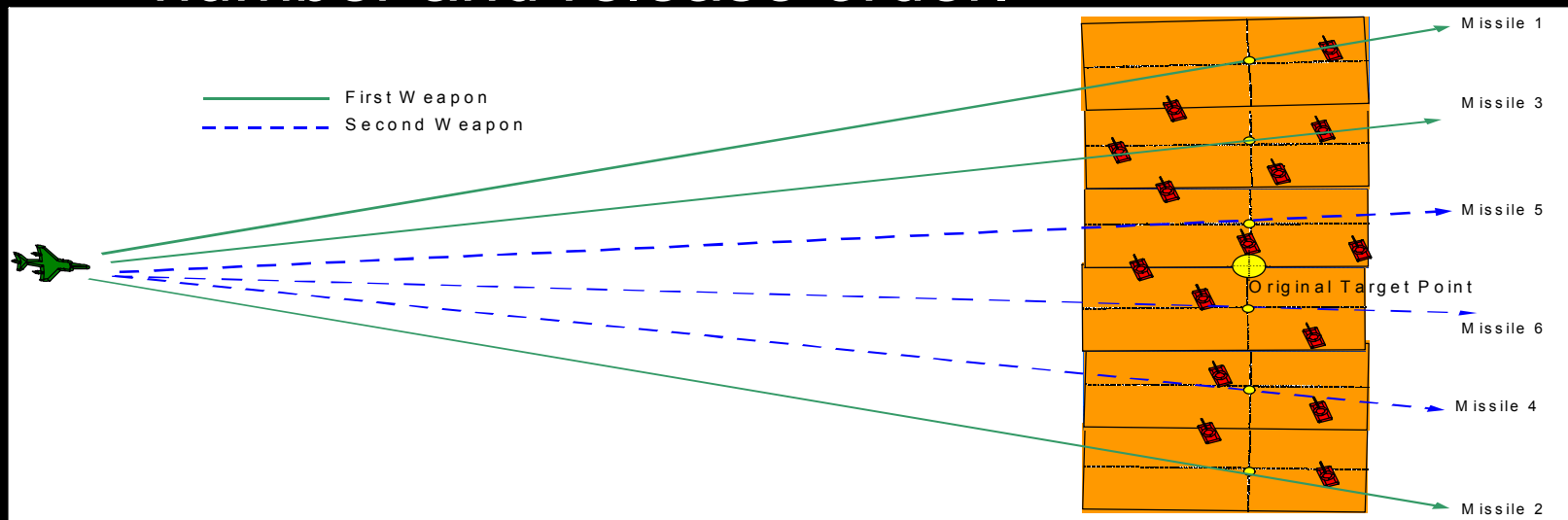
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- Column Attack:
  - Select number of weapons - 3 or 6 Missiles
  - Each missile engages nth target
  - Dependent on the number of weapons and the release order.



# Brimstone Attack Mode

- Area Attack:
  - Select 1 to 4 weapons - 3 to 12 Missiles
  - Missiles generate different target search areas based on target position, weapon number and release order.



# Brimstone Video Simulation

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# Scope

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- Evaluation.



# Evaluation

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- Between Jan to Dec 2005 evaluation, and acceptance trials
- IOC Mar 2005, FOC Dec 2005
- Extensive RAF Service Evaluation Trials:
  - All attack modes
  - Stationary and moving targets
  - Single missile and weapon salvos
  - 22 missiles fired, 21 hits
- Mature, capable and rigorously tested.



# Scope

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- The Future.



# The Near Future

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- Now available as a weapon of choice for Operations
- Apr 06 - full integration in a SEAD scenario, 'Sensor to Shooter'
- Evolution of the Tornado employment tactics against SEAD defences
- Brimstone DEAD?





# The Future

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- Sea trials have confirmed tracking capability
- Naval target arrays:  
Boghammar, Boston Whaler, Zodiac H1010, Future Catamaran
- Seeker Algorithms:
  - DEAD, sea targets, urban environments, man made structures.



# The Future

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- Insensitive Munitions
- Increased range
- Data Link



# Scope

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- Summary.

18 April 2006 Precision Strike  
Association Annual Programs  
Review

UNCLASSIFIED



# Summary

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- ✓ Precision
- ✓ Effect
- ✓ Time
- ✓ Range
- ✓ Low Collateral
- ✓ Interoperability
- ✓ Growth Potential
- ✓ Snipe to Area
- ✓ ERA
- ✓ Simple + Supersonic
- ✓ Out of danger
- ✓ Minimal
- ✓ Fast-Jet Proven  
1760 – US ahead
- ✓ Modular Incremental
  - ✓ This is already a production Missile



# Summary

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- Thomas Edison:  
“There is a way to do things better - find it”
- Air Chief Marshal Sir Jock Stirrup:  
“In the early days of my career it would have taken 21 jaguar aircraft bombers to take out a single Soviet tank. Now one aircraft equipped with Brimstone could take out a dozen tanks”
- If you are still unsure or are considering a career operating for an opposing force inside an armoured vehicle .....



This tank had all explosives and combustible fluids removed and it was still burning 8 hrs after being impacted by BRIMSTONE...



Do you have any questions?

# The End



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