GRiffin
Air Launch Applications

Briefer
Doug Hayner
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Agenda

- Griffin® overview
  - Missile overview
  - Griffin® capabilities
  - Advantages
  - Aircraft integration
  - Griffin® Smart Launcher
  - Production
- Conclusion
Griffin® B Block II missile

• Small and light:
  - 43 inches
  - 33 lbs

• Precise:
  - SASSM GPS/INS
  - Semi-active laser (SAL)

• Reliable:
  - Tube carriage/launch
  - Proven component heritage

• Lethal with low collateral damage:
  - 13 lb blast fragmentation warhead
  - Warhead fuzing options:
    • Height of Burst (HOB)
    • Point Detonate (PD)
    • Delay
    - Confined lethality

• Cockpit selectable options provide real-time flexibility / assessment
  - Fuze settings: PD, HOB, Delay
  - Laser PRF codes
  - Built In Test (BIT)
Target set

Personnel in the open

Light trucks

Personnel in urban environments

Heavy trucks
Current Griffin® warhead

- 13 lbs total weight
- 4.9 lbs PBXN-110
- Steel case internally scored
Integration approach

- **Phase I – Integration**
  - ICD / SIL / Ground test / Captive flight test
  - Lab hardware, CATMs, launcher(s)

- **Phase II – Employment**
  - Live fire at range
  - Telemetry, AUR, launcher(s)
Griffin® Missile Supporting Multiple Navy & Marine Platforms

Operational
- USMC Harvest Hawk
  - Operational Now

Potential Near-Term
- Fire Scout

Potential Additional Applications
- MH-60
- USMC F-35B
Fire Scout Integration

Load out with Smart Launcher
- Demonstration configuration

Load out with Common Launcher
- Field configuration

Smart Launcher
- 26 lbs (47 lbs with strong back and rings)
- UAI 1760 compatible
- Provides known-store emulation to platform
  - Enables integration w/o changing aircraft s/w
- Calculates targeting data with minimal input
- Responds and reports status to host platform
- Adaptable mounting
  - 14” lugs or custom brackets

110 lbs per pylon

Platform agnostic

14 Inch Lugs
GPS Antenna
1760 Connector
Two Missile Load out
Griffin® advantages

- Two-for-one weight advantage over alternative
- More lethal against soft targets than alternative
- Easily integrated using Smart Launcher
- Dual Mode (GPS/INS and SAL)
- Moving target capability to 70 mph
- Accurate GPS only performance
- GPS only mode allows “fire-and-forget” capability for improved force protection
- GPS only enables for multiple rounds simultaneous impact
- Capability increase - four stowed kills and 401 lbs lighter than alternative
Griffin® Smart Launcher
Rotary-wing applications

- 1553 compatible
- Provides known-store emulation to platform
  - Enables platform integration without changing aircraft s/w
- Calculates targeting data with minimal input
- Controls and launches two Griffin™ B Block II-missiles
- Responds and reports status to host platform
- Adaptable mounting
  - 14” lugs or custom brackets
- High structural load margins

* Alternatively, can accept platform GPS input

Griffin® Smart Launcher enables flexible / rapid platform integration

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# Modular Smart Launcher (MSL) Load Out

<table>
<thead>
<tr>
<th>Griffin™ Load Out</th>
<th>2 Per Wing / 4 Total</th>
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**Modular Smart Launcher offers commonality and maximum flexibility**
# Griffin® weight advantage

<table>
<thead>
<tr>
<th>Stowed Kills Per Pylon:</th>
<th>Two Stowed Kills</th>
<th>Four Stowed Kills</th>
<th>Five Stowed Kills</th>
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<tbody>
<tr>
<td>Griffin solution</td>
<td>1 Smart Launcher (47lbs*) + 2 Griffin AURs (42 lbs ea)</td>
<td>2 Smart Launcher Stack with Adapter + 4 AURs</td>
<td>2 Smart Launcher Stack with Adapter and Rings + 5 AURs</td>
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<td>*47 lbs includes strongback</td>
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<tr>
<td>Weight of Griffin solution</td>
<td>131 lbs</td>
<td>281 lbs</td>
<td>326 lbs</td>
</tr>
<tr>
<td>Alternative solution</td>
<td>1 M299 Launcher (143 lbs) + 2 alts. (99 lbs ea)</td>
<td>2 M299 Launchers + 4 alts</td>
<td>Configuration not supported</td>
</tr>
<tr>
<td>Weight of alternative solution</td>
<td>341 lbs</td>
<td>682 lbs</td>
<td>Not supported</td>
</tr>
<tr>
<td>Weight savings</td>
<td>210 lbs</td>
<td>401 lbs</td>
<td>No comparison</td>
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- Same number of stowed kills and more than 30 minutes of station time for OH-58D

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Missile Production
Assembly Line - Rita Road

Griffin® Missile Production – over 1,200 produced
• Production initiated 2008
• Production floor area upgraded in 2009 for improved flow and capacity
Conclusion

- Small, light and extremely precise
  - Ideally suited for scout helicopters and light-weight rotary wing applications

- Target attack shaping – flexible
  - GPS/INS/SAL guidance options
  - Cockpit selectable options: Point detonate, height of burst and fuze delay, ripple launch
  - Multiple round simultaneous impact (MRSI)

- Proven moving-target capabilities
  - Capability to 70 mph

- Made for irregular and hybrid warfare ops
  - Confined lethal effects
  - 13 lb warhead; 25-foot lethality radius on point detonate

- Rapid integration – under 6 months
  - Smart Launcher integrates quickly onto virtually any platform interface
  - Successful and experienced QRC team

- Missile and launcher are in production