2014 NDIA Joint Armaments Conference
.338 Medium Machine Gun Suppressor Test Results

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Suppressor History

- Since warfare graduated from archery to firearms signature suppression has been a goal
  - Reduce chance of being located by the enemy
  - Hearing damage to the gunner and others
  - Communication between troops
- Silencers range in size from .22 cal to 155mm
- Amazon.com has 10+ books on how to build your own silencers
- US Patent Office has hundreds of patents
Suppressor Science

- Suppression = Gas and Energy Management
- Reduce peak energy and increase duration
  - Controlled expansion into baffles
  - Release at subsonic velocities
  - Mixing with cooler ambient air
- Absorb energy
  - Mechanical work
  - Heating
  - Phase change (wet suppressors)
Examples of Suppressor Interiors

Source: www.uspto.gov

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Examples of Suppressor Interiors

http://www.thefirearmsforum.com/showthread.php?t=111003

Jack404  07-27-2012, 08:36 PM
Medium Machine Gun

- Lightweight Medium Machine Gun chambered in .338 Norma Magnum that eliminates the capability gap between currently fielded 7.62mm and .50-cal
- 24 pound system weight similar to M240
- Recoil similar to 7.62mm NATO weapons
- 1900+ meter effective range
- 5x projectile energy at 1000m (vs. 7.62 NATO)
- Rate of Fire: 525 rounds per minute
MMG Suppressor Design

- Suppression Goals
- Thermal Profile
- Fatigue Cycle
- Cost
- Corrosion
- Length
- Weight
- Manufacturing
2013 IR&D Project

- Step 1: gas volume management analysis
- Step 2: iterations of baffle shape and placement
- Step 3: design to cost / manufacturing review
- Step 4: 500 round fire test

- Results: ~10 dB reduction (1/2 peak sound level)
- Geometry: 12.3” Long
- Weight: 1.8 Lbs
MMG Suppressor Live Fire Testing

- Three weapons and one suppressor fired 500 rounds during the engineering test

<table>
<thead>
<tr>
<th>Weapon</th>
<th>Rd's Fired</th>
<th>Rounds Fired</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weapon #1</td>
<td>300</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Weapon #2</td>
<td>170</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Weapon #3</td>
<td>180</td>
<td>180</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>MMG Unsuppressed</th>
<th>MMG Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>123 dB</td>
<td>113 dB</td>
</tr>
<tr>
<td>Behind</td>
<td>120 dB</td>
<td>110 dB</td>
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</tbody>
</table>
Post-test Results

- No thermal damage or distortion to the suppressor
- Minimal erosion to the baffles
- Acceptable amount of fouling
- No detrimental effect on the weapon
- No measurable increase in long range dispersion

- Suppressor reassembled and returned to service