V-22 Ramp Mounted Weapon Systems

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Unclassified

Distribution Statement A: Approved for public release; distribution unlimited
Task Description/Timeline

• 2005 – NSWC Crane tasked by NAVAIR to develop an M240 Ramp Mounted Weapon System.
• 2008 – Tasked to integrate GAU-16/18 (.50 Cal) system on Ramp.
• 2009 – Started fielding .50 Cal Ramp Systems.
• 2010 – Continue to field .50 Cal/M240 Ramp Mounted Weapon Systems.
NSWC Crane M240 Ramp Mount

Current Design:

- Shows installed on Port side of Ramp
- Always fired with ramp level.
M240D Weapon

- FN-designed
- Weight: 26 lbs.
- Length: 49 inches
- Gas-recoil operated system (non-electric)
- Cyclic Firing rate: 650 – 950 rpm
- 7.62 mm ammo (standard ammo)
- Maximum effective range: 1,200 meters
NSWC Crane M240 Ramp Mount

Design Consists of:

- Subassemblies shown
- Aluminum/SST Materials

M240D Weapon
Pintle/Cradle
Baseplate/Swing Arm
Ammunition Rack
Pintle/Cradle Assembly

- Soft-mounted to reduce recoil.
- Spade-gripped weapon

M240D Weapon

Cradle Assy (green)

Pintle
Quick-Disconnect Handles

Handles (Qty: 4)

Mounting Receptacle

½” dia. Setscrews installed here when Mount not in use.

V-22 Aircraft Ramp Panel
Port/Starboard Installation

• Ramp Mount can be installed on either the Port or Starboard side.
Azimuth Angles

- Good aft field-of-fire.
- Azimuth fields-of-fire limited by aircraft structure (6” clearance).
Depression Angle

- Significant Depression
- Elevation field-of-fire limited by aircraft structure (6” clearance).
Swing Arm Lock-in Pin

- Lock-in pin used to rotate Swing Arm
  - firing position
  - inboard stow position
Inboard Stow – Port Side

- Allows ingress/egress of personnel.
- Loading/Removal of cargo/troops.

Weapon stowed level

Swing Arm rotated inboard
Inboard Stow – Starboard Side
Ammunition Tray on Mount

- Holds 1 standard can of 7.62 mm ammo
- 200 rounds
- Used on UH-1N, -H46, & H60
Ammunition Rack

Hinged latch plate that swings up

Spring-loaded latches

Ammo Rack holds two cans of ammo (400 rnds)
Brass/Link Ejection Systems

- Brass/Link Catch Bag
- Ejection Chute System
Picture of Ejection Chute System
NSWC Crane .50 Cal Ramp Mount

Current Design:

• Attaches same way as M240 Ramp Mount
GAU-16/GAU-18 Weapon

• Weight: 65 lbs.
• Length: 56 inches
• Gas-recoil operated system (non-electric)
• Cyclic Firing rate: 750 – 850 rpm
• .50 cal ammo (standard ammo)
• Maximum effective range: 2,000 yards
NSWC Crane .50 Cal Ramp Mount

- GAU-16 Weapon – Marine
- GAU-18 Weapon – A/F

GAU-16/GAU-18 Weapon

MK 94 Mount (in green)

“Beefed up” Baseplate/Swing Arm
MK 94 Mount

- Soft-mounted to reduce recoil.
- Trigger Housing rotates down
- Used on H60 aircraft

GAU-16/GAU-18 Weapon

Single Shock Absorber

MK 94 Mount
Port/Starboard Installation

- .50 Cal Ramp Mount can be installed on either the Port or Starboard side.
Inboard Stow – Port Side

- Weapon stowed
- Stow Bracket
- Swing Arm rotated inboard
Inboard Stow – Starboard Side

- Ammo can installed on opposite side.
- Opposite feed weapon
Ammunition Tray on Mount

- Holds 1 can of standard .50 cal ammo
- 100 rounds
Ejection Chute Assy

Metal hopper

6” Flexible hose
## Weights of Ramp Mount System

<table>
<thead>
<tr>
<th></th>
<th>M240</th>
<th>.50 Cal</th>
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<tbody>
<tr>
<td>Weapon</td>
<td>26 lbs.</td>
<td>65 lbs</td>
</tr>
<tr>
<td>Ammo (400 rnds)</td>
<td>34 lbs.</td>
<td>128 lbs.</td>
</tr>
<tr>
<td>Mount/Swing Arm</td>
<td>70 lbs.</td>
<td>99 lbs.</td>
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<tr>
<td><strong>Total Weight</strong></td>
<td><strong>130 lbs.</strong></td>
<td><strong>292 lbs.</strong></td>
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Future Deliveries of Ramp Mount Systems

• Thru 2020 – in conjunction with deliveries of production aircraft.
Point of Contact Information

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