Expeditionary Fighting Vehicle (EFV)
30mm Ammunition Feed System

Presented by:

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Presentation Outline

- Vehicle Highlights
- Ammunition Feed System (AFS) Overview
- Testing Completed to Date
- Key Program Milestones (and Video)
- Path Forward

EFV Vehicle Highlights

- **Mission**
  - Transport Infantry From Ships Beyond the Horizon to Inland Objectives
  - Provide Direct Fire Support During Combat Operations
- **Speed**
  - Land: 45 mph
  - Water : 29 mph
- **Weight: 76,000 lbs**
- **Carrying Capacity: 20**
  - 3 Crew; VC, gunner and driver
  - 17 Infantry

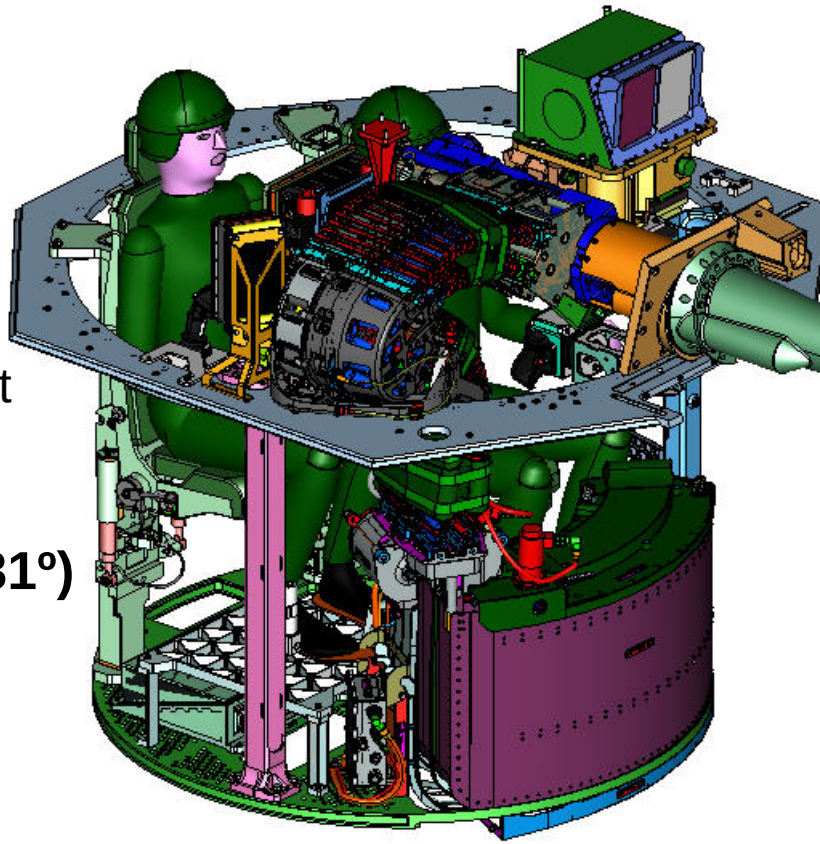
- **Fire Power**
  - MK46 30mm Weapon Station With the MK44 30mm Automatic Gun
  - M240 7.62mm Coaxial Machine Gun

EFV AFS Key Requirements

- **Ready ammunition capacity:**

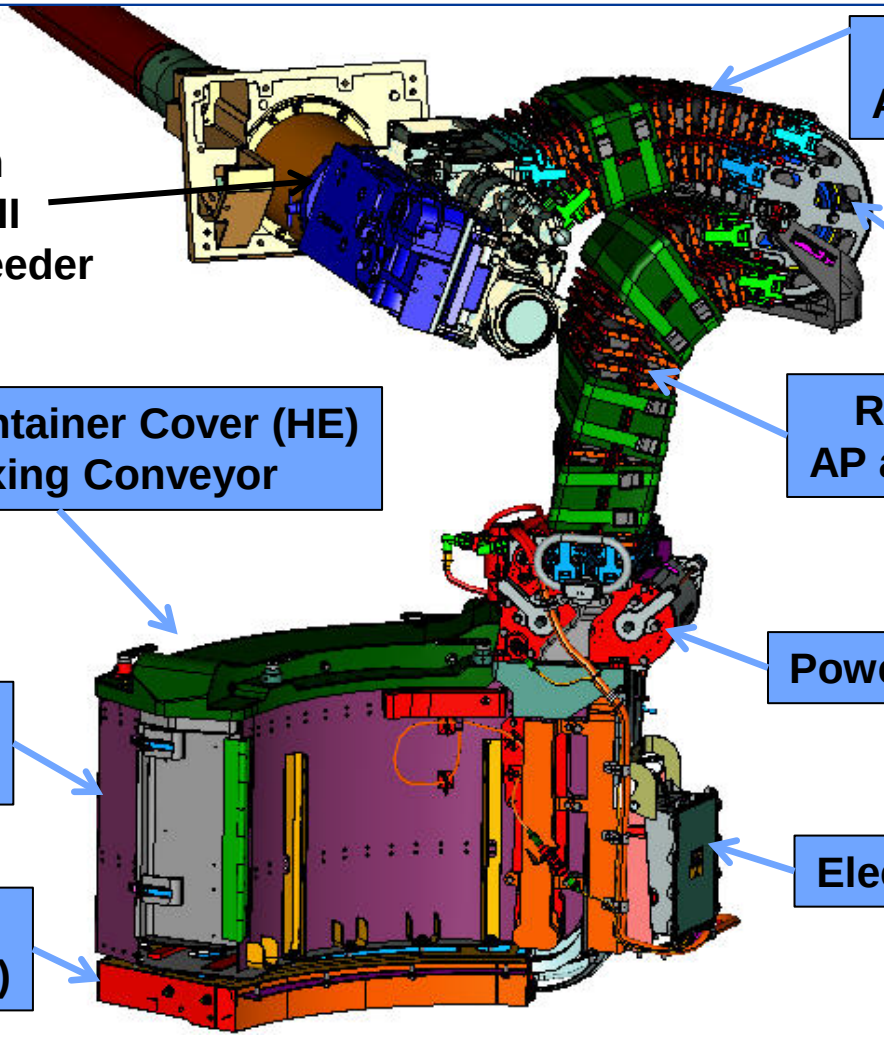
Container	Threshold	Objective
Primary (HE)	150	180
Secondary (AP)	50	60
TOTAL	**200**	**240**

- **Rate of Fire: 200 rounds/min.**
  - Single shot, 5 round & continuous burst
- **Gun Elevation Range: -10° to +45°**
- **Vehicle Attitude: Up to 60% grade (31º)**
- **Operational after 360º rollover**
- **Weight: 235 lbs**
- **Reliability:**
  - ≥ 10,000 (MRBF),
  - ≥ 22,000 (MRBOMF)



EFV Design Overview

-Current AFS Configuration



MK44 30mm Bushmaster II Gun and Dual Feeder

Redesigned Upper AP and HE Flex Chutes

Pivoting Roll-Over

Redesigned Lower AP and HE Flex Chutes

Primary Container Cover (HE) w/ Indexing Conveyor

Powered Forwarder

Primary Container (HE)

Electronic Control Unit

Secondary Container (AP)

EFV Testing Summary
- AFS Brassboard

- **Cycle Testing**
  - ~10,000 rounds cycled
  - HE can resistance characterized
  - HE can index function characterized
  - Booster function characterized
  - Cycle tested both HE & AP sides
  - Loading assessment with vehicle mock-up
  - 31º Tilt Test
    - HE ammo can and forwarder only

- **Identified design improvements**
  - Roll-Over Geometry Redesign
  - HE can round positioning & retention features
  - HE separator mechanism actuation method external to can

EFV Testing Summary

- Delivered Production Systems 1-9

- **Acceptance Testing**
  - 9 systems
  - GDATP EDL facility
  - Engineering Pre-Test
- **Formal ATP**
  - 4 gun elevations
    - -10º,+15º,+30º,+ 45º
  - Cycling per elevation
    - Single Shot
    - 5 round burst
    - Continuous burst
  - Download capability

EFV Testing Summary

-Total rounds cycled per production configuration

System	Pre ATP Cycled Rounds	ATP Cycled Rounds	Post ATP Cycled Rounds	Total Rounds on System
System #1	2316	156	0	2472
System #2	1302	188	0	1490
System #3	193	158	9928	10279
System #4	107	121	0	228
System #5	120	156	73	349
System #6	122	156	0	278
System #7	193	251	0	444
System #8	206	307	0	513
System #9	274	402	0	676
Totals	**4833**	**1895**	**10001**	**16729**
Total rounds cycled on Turret #1 (including brassboard) as of 4/25/2010				**26735**

EFV Testing Summary

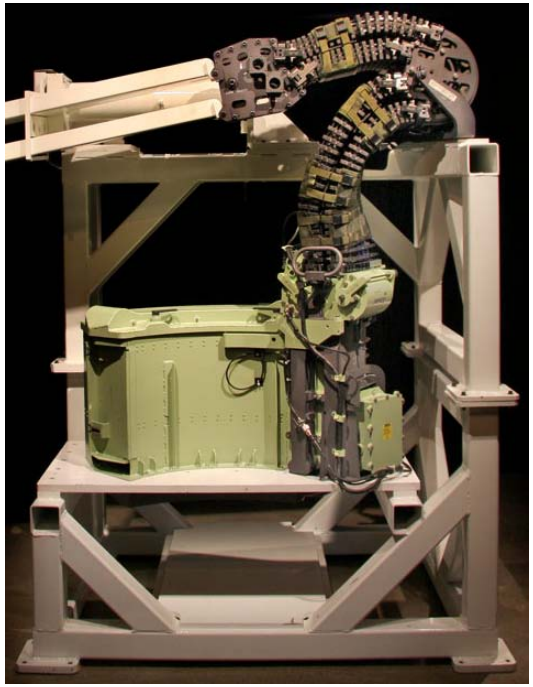
- Follow On Engineering Testing Design Upgrades

- **6 Design Areas Identified for Upgrades on Delivered Systems**
  - HE Cover
  - HE Separator Handle
  - ECU Firmware
  - HE Container
  - Pivoting Roll-Over Sprocket
  - Forwarder Clutch

- **Retrofit Activity**
  - Delivered systems were returned to GDATP for retrofit
  - Two week turnaround time per system
  - Upgrade activity occurred from February through April 2010.
  - All Systems have been retrofitted and returned to GDAMS.

Key Program Milestones

- **Contract Award: November 2007**
- **PDR: March 2008**
- **Brassboard Hardware Testing**
  - Sept. 08 - Jul. 09
- **CDR: Sept. 2008**
- **Production Acceptance Testing**
  - Aug. – Dec. 2009
- **Live Fire Demonstration**
  - October 2009 at the GDATP Ethan Allen Firing Range
  - Representatives from GD Amphibious Systems (GDAMS), Marine Corps EFV Program Office, Government Accountability Office (GAO) and local media.



Live Fire Demonstration

EFV AFS Path Forward

- **GDATP Supplier Retained Unit**
  - ↗ **Complete Engineering Testing**
    - 10,000 rounds cycle test in the GDATP Engineering Development Laboratory (EDL)
    - Testing will include efforts in a 31º tilt stand.
  - ↗ **Conduct Environmental Qualification Testing**
    - Testing consists of Shock, Vibration, Underwater Mine Blast, Temperature, High Pressure Spray and Salt Fog
- **Delivered Units**
  - ↗ **Operational Assessment (OA) Summer 2010**

Questions?