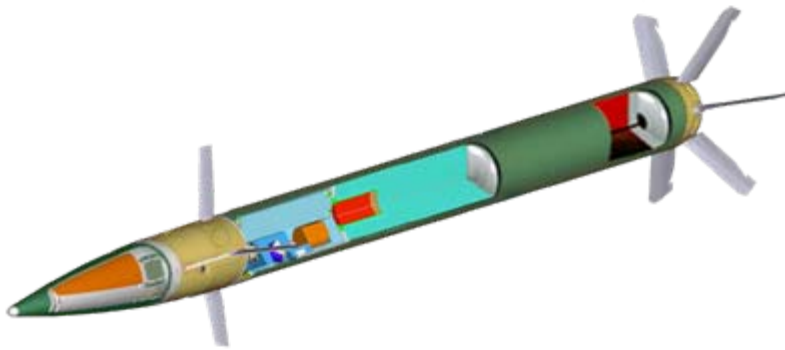




# ***Precision Strike Annual Programs Review***

## ***Extended Range Mmunition (ERM)***

***25 April 2007***



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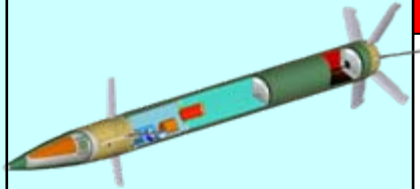
# Naval Surface Fire Support (NSFS) Family of Systems

## Extended Range Munition (ERM) 5" Guided Projectile

BTERM Demo



ERGM



## Naval Fires Control System (NFCS)



## MK 34 5" Gun Weapon System

MK 160 Fire Control



Q-70 Gun Console

MK 45 Mod 4 Gun



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## Magazine Handling System

DDG 81 - 112



## Conventional Munitions





# ERM CDD Requirements

(JROC Approved 22 May 06)



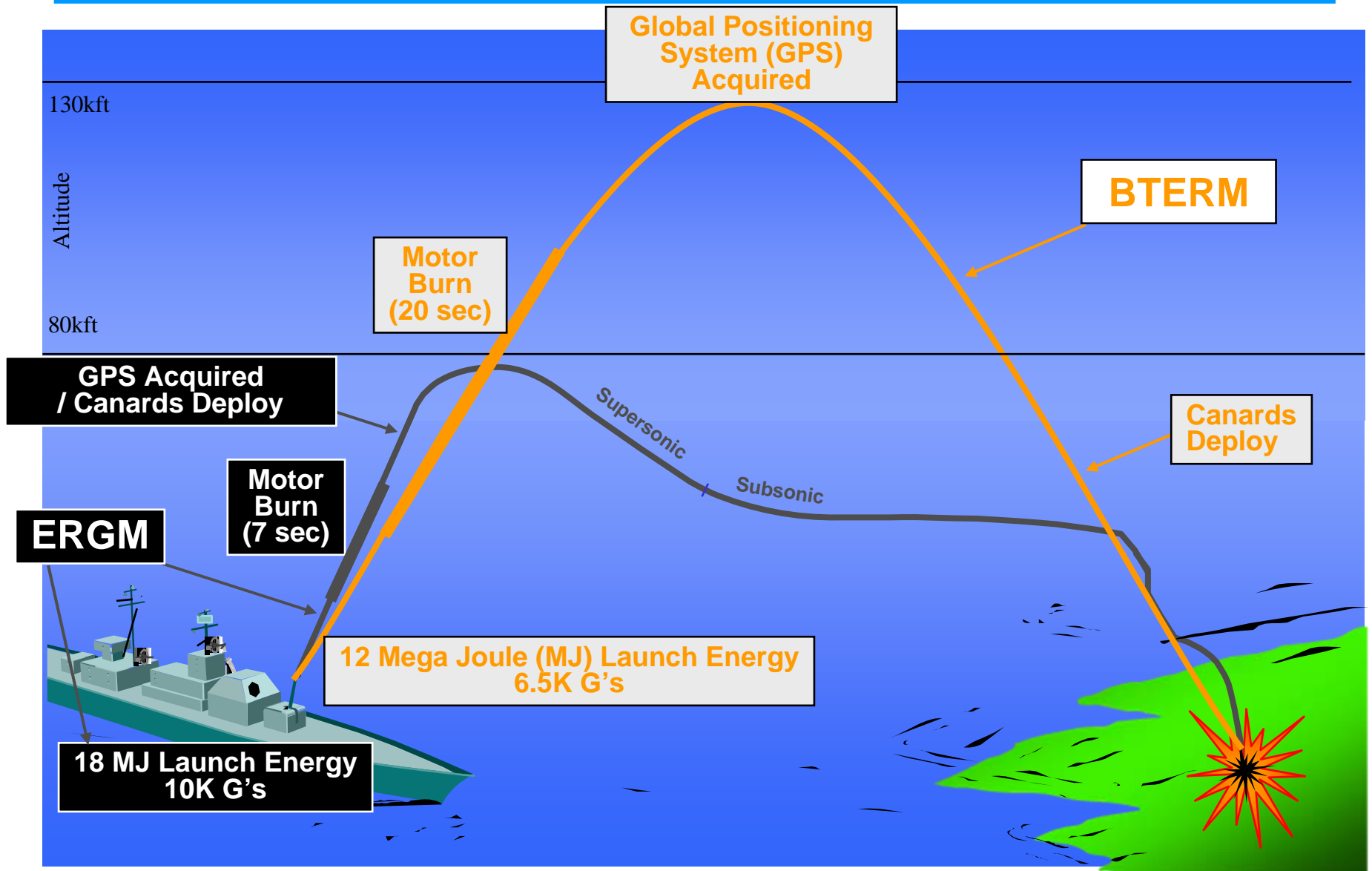
Key Performance Parameter (KPP)	Threshold	Objective
<u>Range</u>		
Minimum	15 nmi	10 nmi
Maximum	41 nmi	63 nmi
<u>Time-of-Flight</u>		
41 nmi	<5.0 min	<2.5 min
63 nmi	<7.5 min	<3.5 min
<u>Accuracy</u> (meters Circular-Error-of-Probability (CEP))		
Unjammed	20 m	5 m
Jammed	20 m	18 m
<u>Rate of Fire</u> (rounds per minute)	5	10
Net Ready KPP (Interoperability)	100% of all Top Level IER's	100% of all IER's
<b>ERGM Demonstrated</b>		

## Selected Non-KPP Requirements

- ◆ Reliability (90% - Threshold)
- ◆ Lethality (4 targets)
  - Truck: Single stationary cargo truck (Zil-157)
  - Personnel: 20 standing personnel, uniformly distributed in open terrain 100m x 100m
  - Radar: Straight Flush
  - Artillery Position w/servicing crew
- ◆ Insensitive Munitions
- ◆ Affordability
- ◆ Climatic Conditions Survivability
- ◆ Electromagnetic Effects
- ◆ Advanced Fuzing Capabilities / Multi-Round Simultaneous Impact (MRSI) – Desired Capability

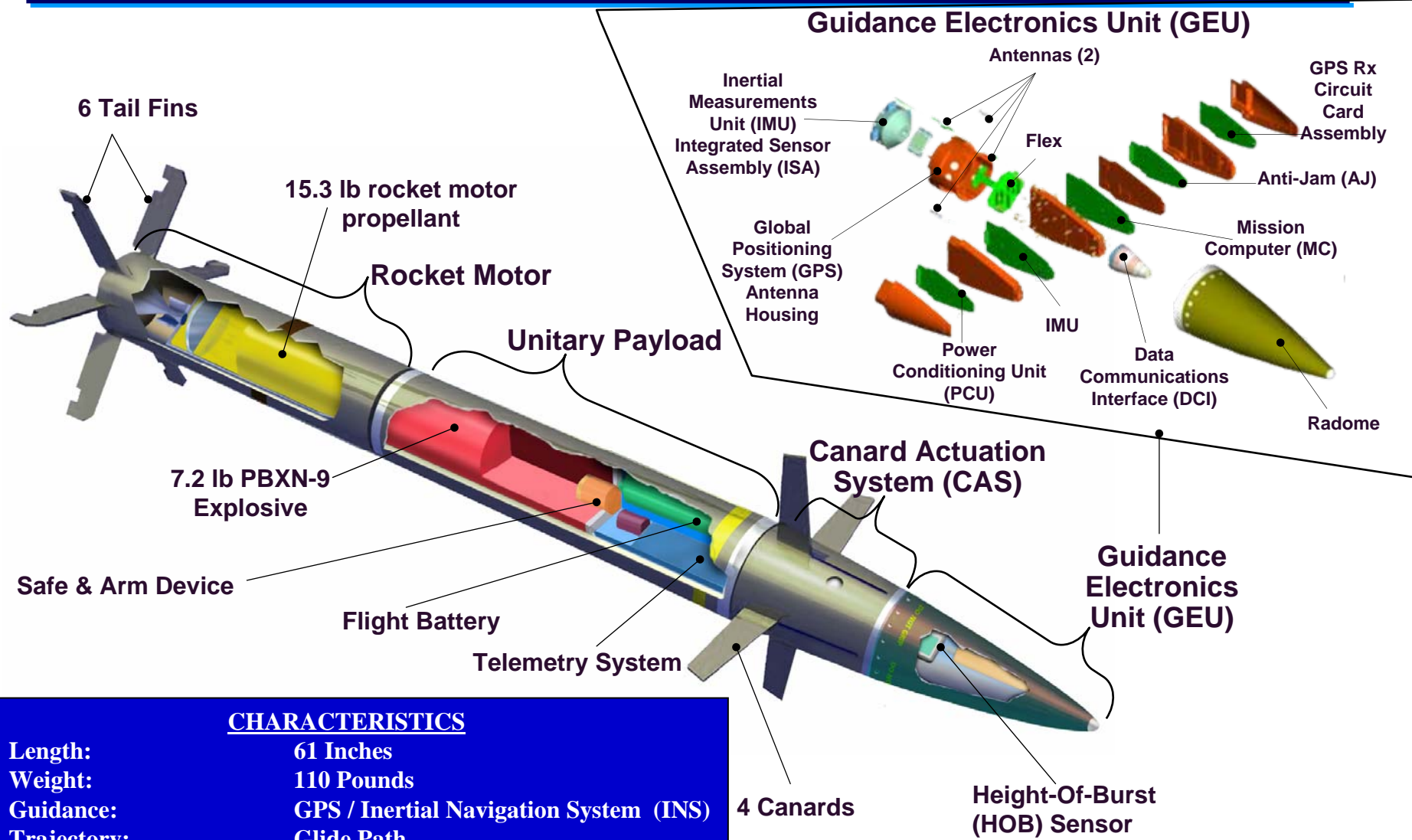


# ERGM / BTERM Mission Profiles





# Extended Range Guided Munition (ERGM)



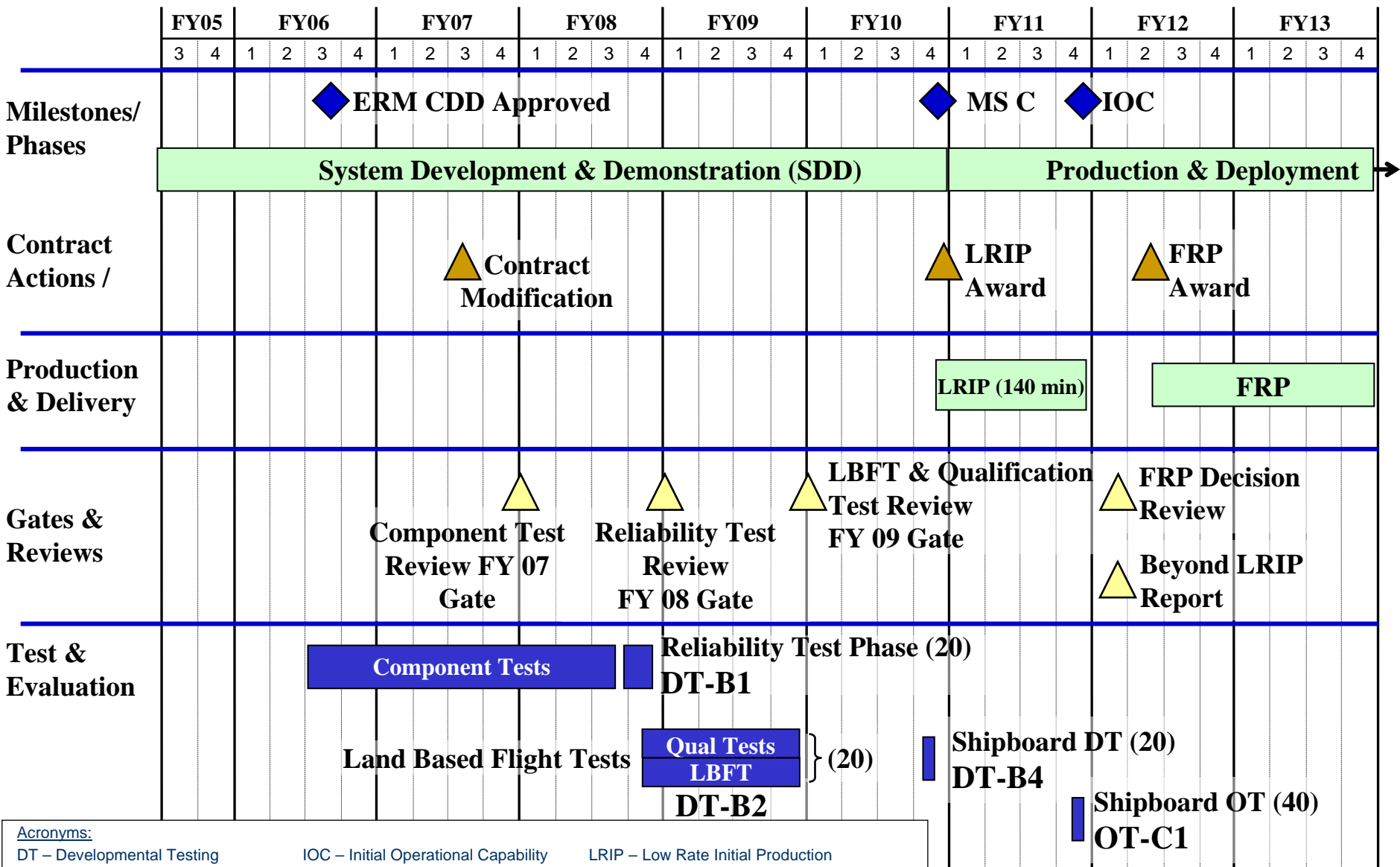
## CHARACTERISTICS

- **Length:** 61 Inches
- **Weight:** 110 Pounds
- **Guidance:** GPS / Inertial Navigation System (INS)
- **Trajectory:** Glide Path
- **Payload:** Unitary Warhead w/HOB Fuze
- **Range:** 13 to 48 Nautical Miles
- **Primary Contractor:** Raytheon





# ERGM Acquisition Schedule



**Acronyms:**  
 DT – Developmental Testing  
 EFT – Engineering Flight Test  
 FRP – Full Rate Production  
 IOC – Initial Operational Capability  
 LBFT – Land Based Flight Tests  
 OT – Operational Testing  
 LRIP – Low Rate Initial Production  
 MS – Milestone  
 CDD – Capability Development Document



# ERGM Major Test Events



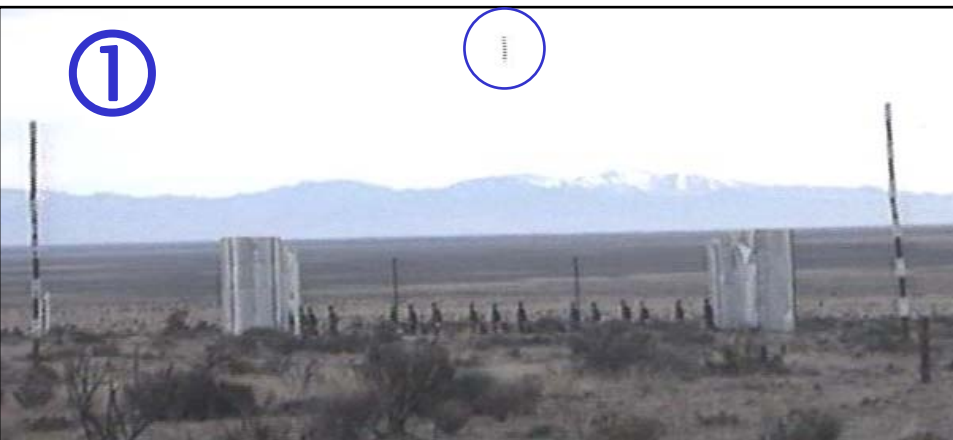
Test Phase	Estimated Date	Test Location	Quantity Tested	Remarks
DT-B1	4Q FY08	WSMR	20	<ul style="list-style-type: none"> <li>◆ Reliability Demonstration</li> <li>◆ All shot to &gt;41 nmi                             <ul style="list-style-type: none"> <li>– Assess Accuracy</li> </ul> </li> </ul>
DT-B2	FY09	WSMR	20	<ul style="list-style-type: none"> <li>◆ Evaluate all KPP's</li> <li>◆ Assess Lethality vs Targets</li> <li>◆ Environmental Conditioning</li> </ul>
DT-B3	4Q FY09	WAFB	5	<ul style="list-style-type: none"> <li>◆ Gun Weapon System End-to-End Test</li> </ul> <p style="font-size: 2em; font-weight: bold; text-align: center; color: black;">CANCELLED</p>
DT-B4	4Q FY10	Shipboard San Clemente Island	20	<ul style="list-style-type: none"> <li>◆ Evaluate Entire System</li> </ul>
OT-C1	4Q FY11	Shipboard San Clemente Island	40	<ul style="list-style-type: none"> <li>◆ Operational Testing</li> </ul>



# ERGM Engineering Flight Test A (Video)

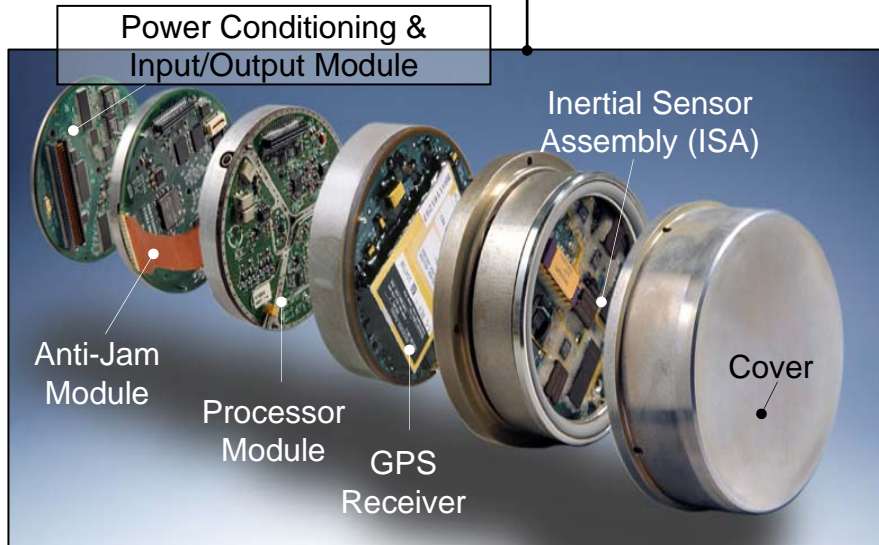
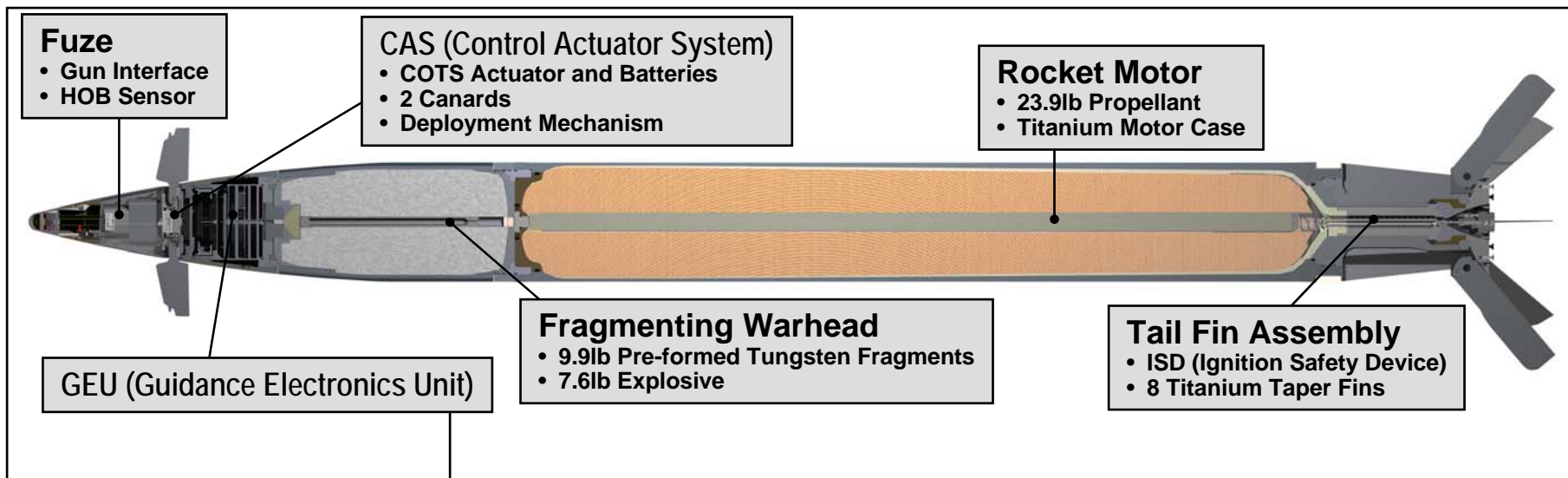


65,600 psi / 10,000g, 41.2 nmi, <4 feet accuracy





# Ballistic Trajectory Extended Range Munition (BTERM) II



- CHARACTERISTICS**
- **Length:** 61 inches
  - **Weight:** 96 pounds
  - **Guidance:** GPS/INS
  - **Trajectory:** Ballistic
  - **Payload:** Pre-formed fragmenting Unitary Warhead w/HOB Fuze
  - **Range:** 54 nautical miles (Projected)
  - **Primary Contractor:** Alliant TechSystems (ATK)



# ERM Production



- ◆ **ERM inventory objective is 15,000 rounds (domestic)**
  - **Baseline design**
  - **Total may increase**
    - **Product Improvement Program (PIP) efforts identified**
    - **Foreign Military Sales – no decisions yet**
  
- ◆ **Threshold production cost of \$58K (FY05 base-year dollars)**
  - **Includes propelling charge and shipping container**
  
- ◆ **Initial procurement (LRIP) begins in FY11**
  
- ◆ **Full rate production begins in FY12**
  - **For planning purposes, production continues through FY19**
  - **Approximately 2000 rounds per year**



# Summary



- ◆ **Navy committed to ERM development and fielding**
- ◆ **ERGM on track to meet ERM Cost, Schedule and Performance Requirements**
  - **FY08 Reliability Demonstration**
  - **FY11 IOC**