

MK 432 ELECTRONIC TIME FUZE

A New Fuze for the US Navy

Chad Finch, G34 Fuze Branch

Dave Mengel, Bulova Tech



TACOM

*Mobility and Firepower
for America's Army*

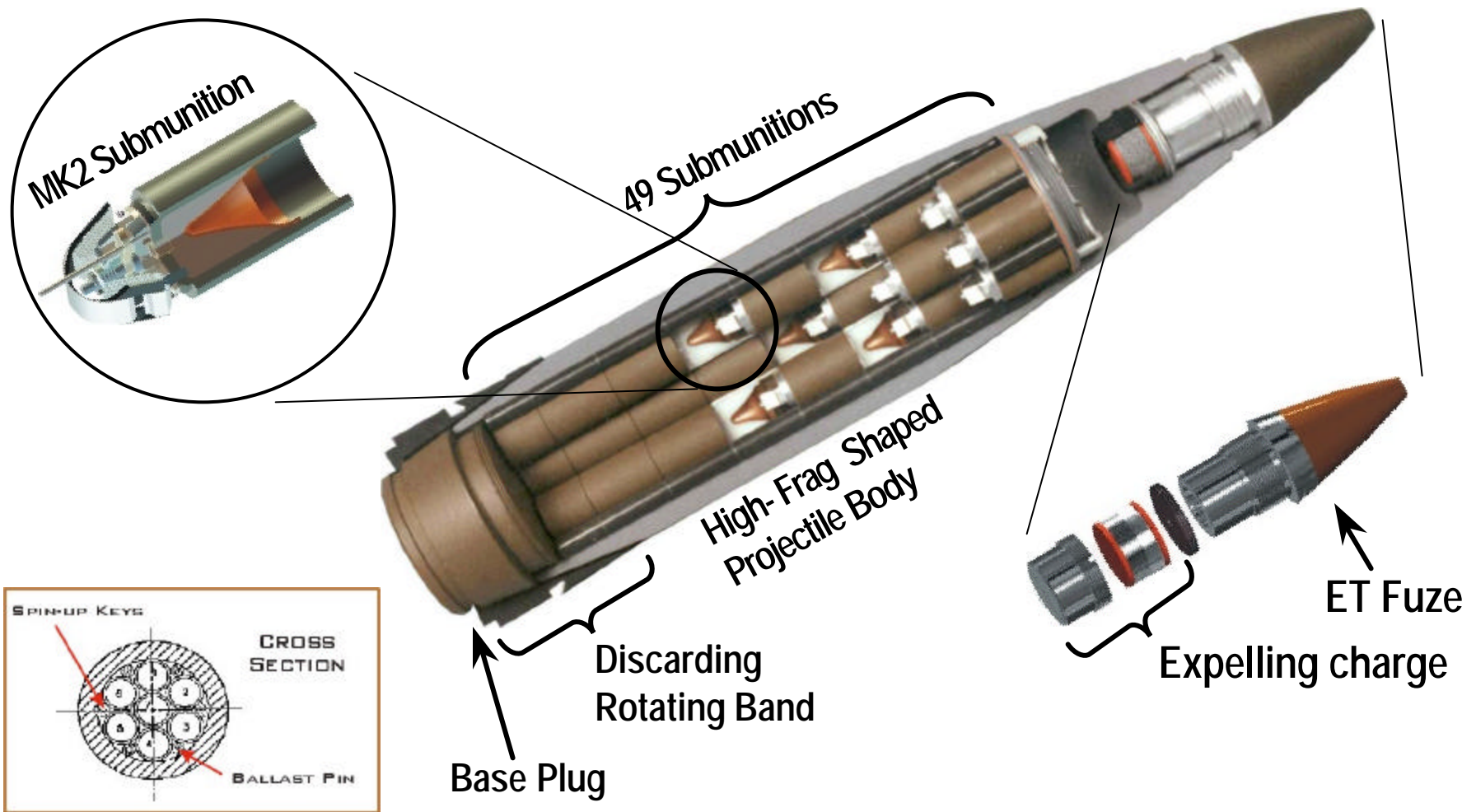


Report Documentation Page

Report Date 16Apr2001	Report Type N/A	Dates Covered (from... to) -
Title and Subtitle MK 432 ELECTRONIC TIME FUZE A New Fuze for the US Navy	Contract Number	
	Grant Number	
	Program Element Number	
Author(s) Finch, Chad; Mengel, Dave	Project Number	
	Task Number	
	Work Unit Number	
Performing Organization Name(s) and Address(es) NAVSEA DAHLGREN	Performing Organization Report Number	
Sponsoring/Monitoring Agency Name(s) and Address(es) NDIA (National Defense Industrial Association) 211 Wilson Blvd., Ste. 400 Arlington, VA 22201-3061	Sponsor/Monitor's Acronym(s)	
	Sponsor/Monitor's Report Number(s)	
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes Proceedings from The 45th Annual Fuze Conference, 16-18 April 2001 Sponsored by NDIA, The original document contains color images.		
Abstract		
Subject Terms		
Report Classification unclassified	Classification of this page unclassified	
Classification of Abstract unclassified	Limitation of Abstract UU	
Number of Pages 13		



Navy 5" Cargo Projectile EX 172 HE-ICM



NDIA, 4/18/01, cfinch



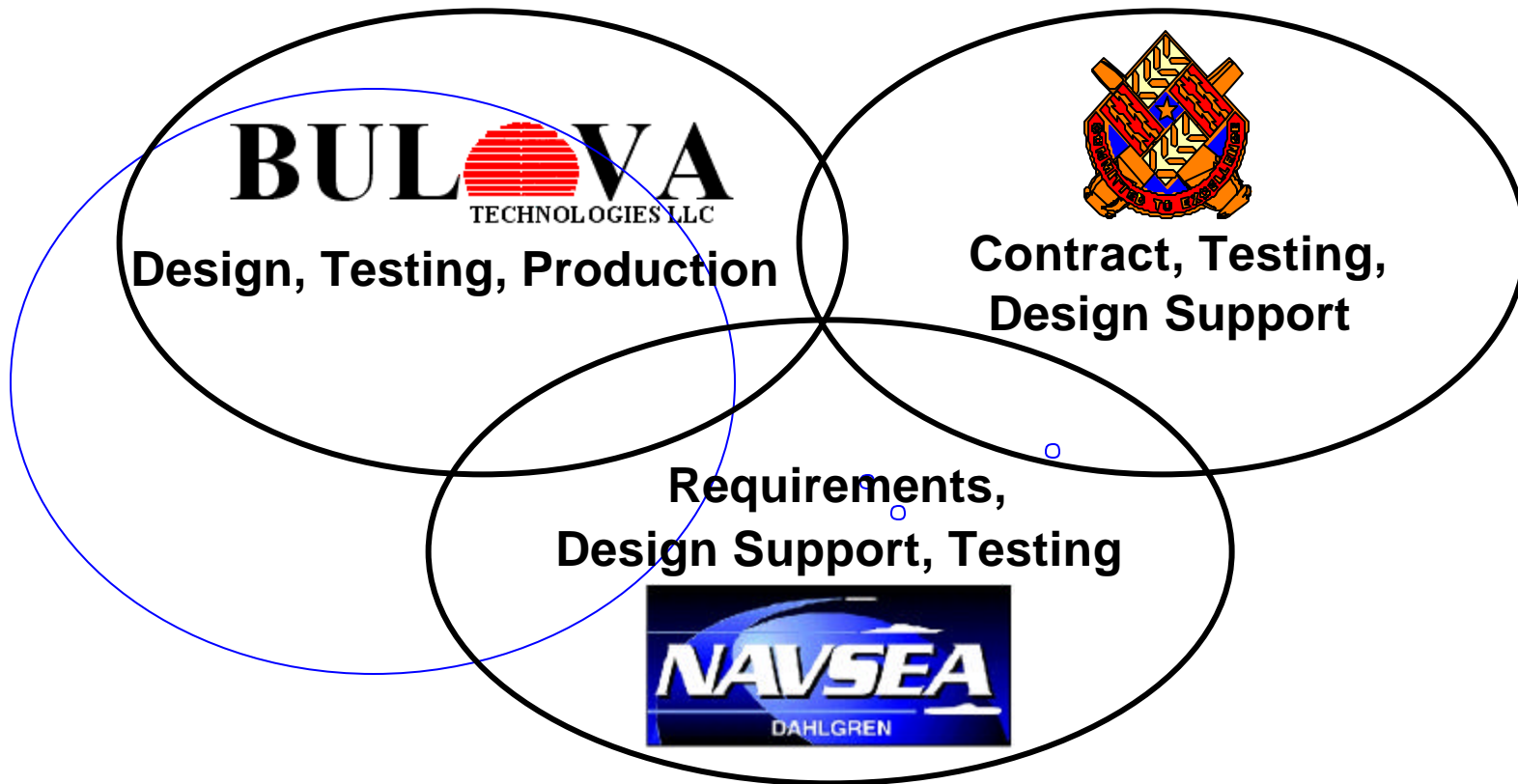
Fuze Alternatives

	MK 429 MFF	Simplified MK 429	Modified MOFA	Modified M762A1
Development Cost	None	\$1,000,000+	\$1,000,000+	\$1,000,000+
Projectile Compatibility	Proven	Proven	TBD	Proven
Overhead Safety	Acceptable	Acceptable	TBD	Excellent
Unit Cost	High	Medium	Low	Lowest
Total Cost 14,600 Fuzes	High	High	Medium	Low



Team Approach

- Take Advantage of M762A1 MCP in Process
- Amended Army's MCP Contract on May 2000





Requirements

- **Three Major Changes to M762A1 Fuze:**
 - **Compatibility w/ Gun Weapon System**
 - **Inductive Set Changes**
 - **Battery Activation**
 - **From Activate on Set to Activate at Gun Launch**
 - **Targets**
 - **Increased Timer Precision**



Inductive Set Changes

M762A1

- **PIAFS Setter**
- **19 Bit Message**
- **Single Set Mode**
- **Time Resolution**
 - **0.1 Second**

MK 432

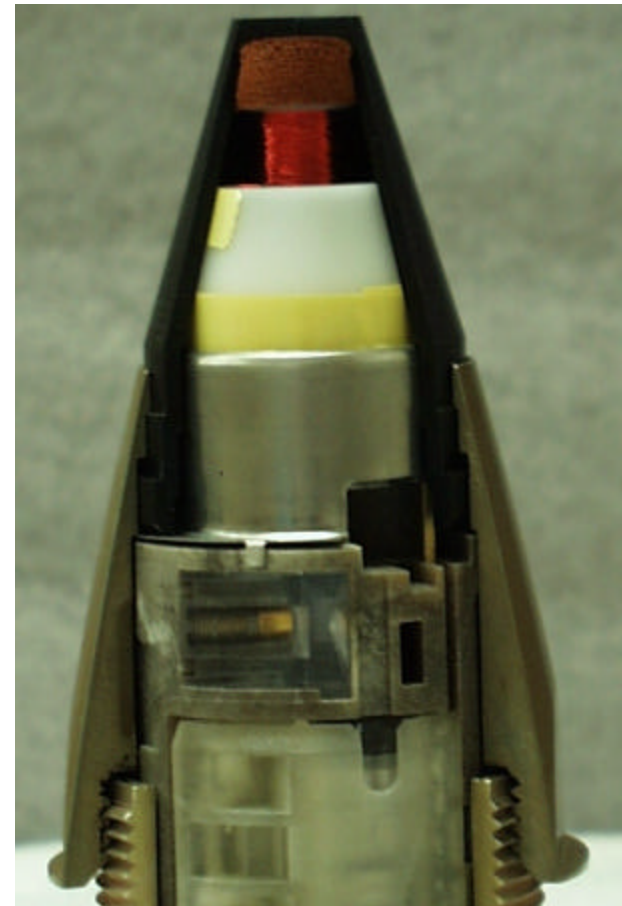
- **MK 34 Setter**
- **26 Bit Message**
- **Continuous Set Mode**
- **Time Resolution**
 - **0.01 Second**

Inductive Set Changes

M762A1



MK 432



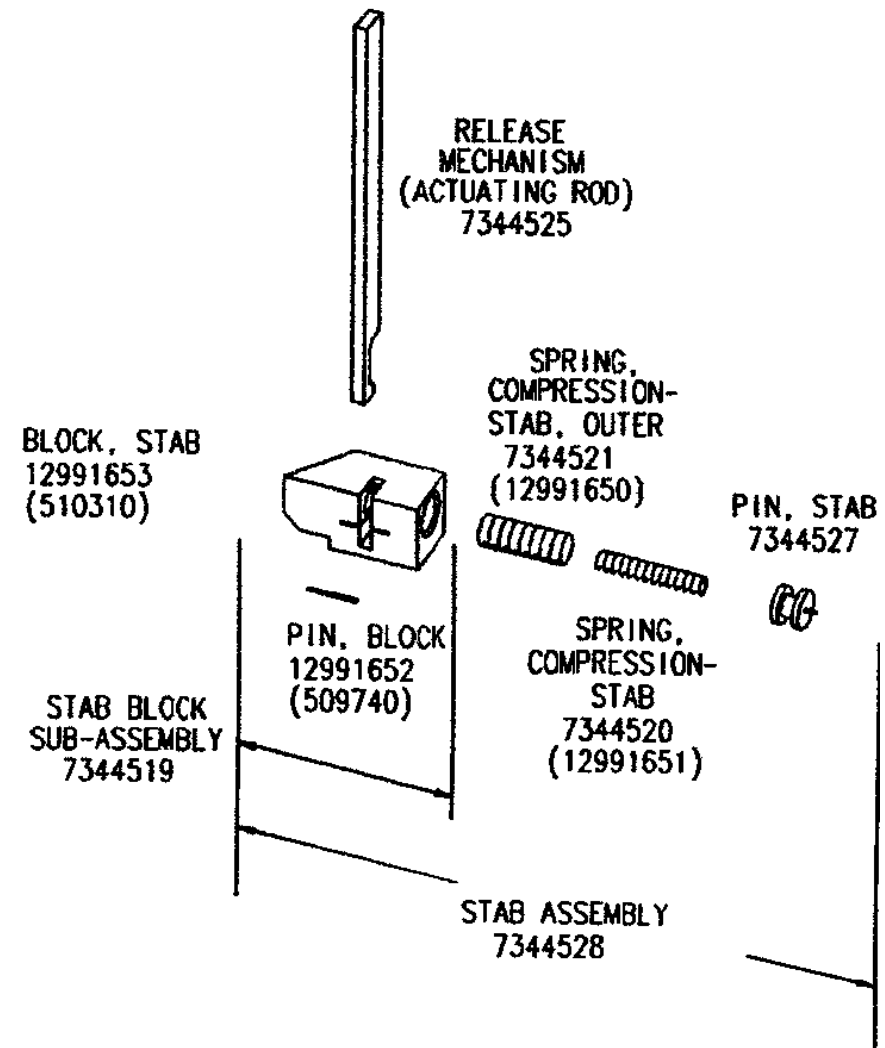


Battery Activation

- **M762A1**
 - **Activation on Set (Manual or Inductive)**
- **MK 432**
 - **Activation at Gun Launch Required**
 - **Redundant Activation Methods:**
 - **Electrical Activation**
 - **Spin Switch Closure Initiates Battery Primer**
 - **Mechanical Activation**

Battery Activation

- **Mechanical Activation**
 - **Modified Actuating Rod Release Stab Pin Via Setback Force**
 - **Stab Pin Has Less Mass**
 - **Entire Stab Assembly Lubricated**
 - **Design Proven in Vertical Recovery Tests**





Timer Precision

- **M762**
 - **Settable to 199.9s**
 - **Set Resolution of 0.1 Seconds**
- **MK 432**
 - **Settable to 327.66s**
 - **Set Resolution of 0.01 Seconds**
 - **Greater Precision Needed for SuW Targets**
 - **System Errors Reduce Benefit at Long Range**



Other Changes

- **Eliminated Manual Set Capability**
- **Eliminated Point Detonating Backup Mode**
 - **MK 432 Will Dud in the Event of a Primary Mode Failure**
- **New Carbon Filled Ogive**
 - **Added Protection During Electromagnetic Environmental Effects**



Qualification

- **400 Fuzes Completed on 30 March**
- **First 10 Gun Fired at Yuma on 21 March**
 - **Only 10 Months from Contract Award**
 - **9 Successful Firings, 1 No Test**
- **60 Fuzes for EEE Testing**
- **102 Fuzes for MIL-STD-331B**
- **Qualification Completed Summer 2001**



Production

- **Scheduled to Begin July 2001**
- **14,600 Fuzes Delivery October 2001**
- **Old Fashion Build to Print Contract**
 - **No Performance Specification**
- **On Schedule for a Record Setting Delivery**
 - **16 Months from PIP Contract to Completion of Production**