TACOM

Lethality, Survivability, Mobility and Sustainment for America's Army

Product Manager for Mortar Systems

The Road To The Objective Force

"Armaments for the Army Transformation"

20 June 2001

LTC Larry Hollingsworth
PM Mortars

Purpose

Demonstrate how ***PM Mortar Systems***
is ***Nested*** *with*
DSA, TACOM*, and* ***AMC***
In support of ***The Army Transformation***

Provide an orientation on How
PM Mortar Systems *will*
Support The Army Transformation

Outline

Support to Army Transformation

Mortar Systems

Brigade Combat Team

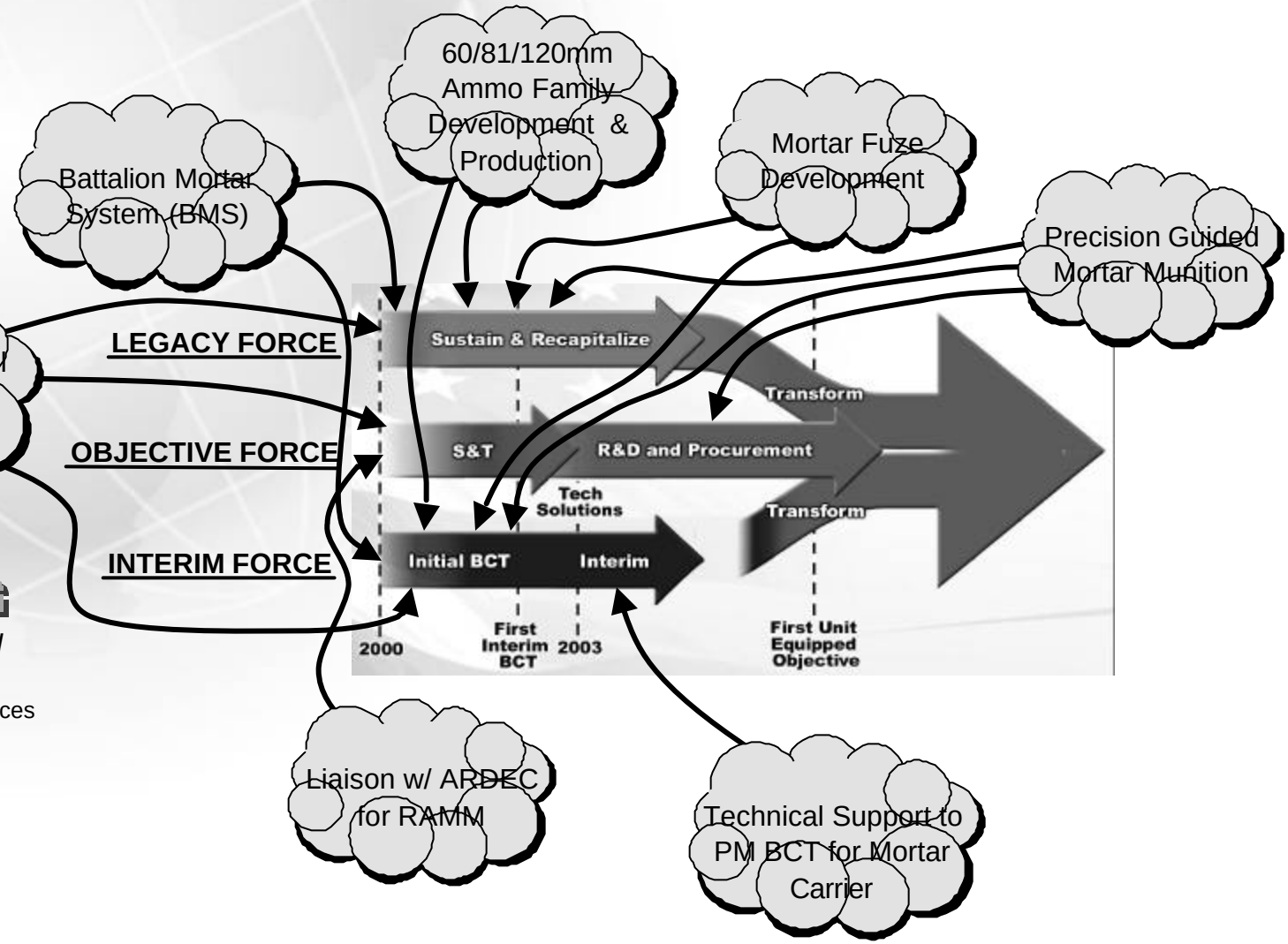
Infrared Illumination

Precision Guided Mortar Munition

Mortar Fire Control System

Summary

PM Mortars Support to Army Transformation



PARTNERING

PM MORTARS and FIELDED FORCE

- Other Agencies and Services
  - Other Army
  - USMC
  - TACOM ARDEC
  - USAF
  - Many Others
- Industry
- Allies
  - PGMM
  - Swiss Munitions
- Academia

Mortars: Organic Fire Support

<u>Your Father's Mortar:</u>

- Same Mission
- Influence the Red Zone
- Maneuver Commander's Organic Fire Support

"K Comp'ny artillery commander speakin'." (Bill Mauldin, *Up Front*, 1944)

<u>Not your Father's Mortar:</u>

- Digital Fire Control
- Improved Munitions
- Increased Lethality

U.S. Army Mortar Weapon Systems

- Early 70's
- 1,400 Systems
- $11K

- Late 80's
- 1,300 Systems
- $23K

60mm M224 Lightweight Mortar

Brigade Combat Team

81mm M252 Improved Mortar

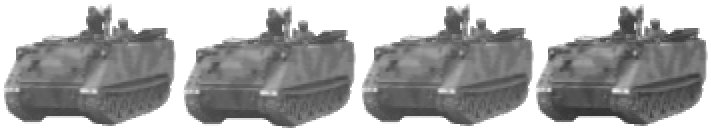
- Early 90's
- 54 Systems
- $21K

- Mid 90's
- 1,100 Systems
- $21K

120mm M120 Towed Mortar

120mm M121 Carrier Mortar

U.S. Army Mortars Current Distribution

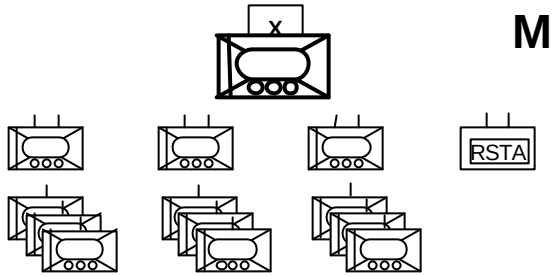
	Per Company	Per Battalion (Mortar Platoon)
(4 Per Bn X 3 Bn) **Heavy Brigades** **12** X 120mm		4 X 120mm  1 FDC
Light Brigades **12** X 81mm **18** X 60mm	(2 Per Co X 9 Co) 2 X 60mm	 4 X 81mm (4 Per Bn X 3 Bn) 1 FDC
Ranger Regiment **4** X 120mm **4** X 81mm **6** X 60mm	**Arms Room Concept**	 Mortar Arms Room 4 X 120mm / 4 X 81mm / 6 X 60mm 1 FDC
Brigade Combat Team* **36** X 120mm **12** X 81mm **18** X 60mm * Includes RSTA Sqdn which has 6 x 120mm	2 X 120mm Each Mortar Carrier can also transport: M224 60mm	4 X 120mm 1 FDC Each Mortar Carrier can also transport: M252 81mm **36 120mm Mortars in the BCT**

Interim **Brigade Combat Team Mortars*:* Brigades 1 and 2**

FUE Bn (-) is 1QFY03, FUE Bde 2QFY03

Ammunition Storage

120mm Only	**60 rounds**
Battalion (120/81mm)	**45 / 25**
Company (120/60mm)	**45 / 75**



Mortar Carriers: 36 (+2 ORF)

M121 120mm Mortar Carrier Dismounted for Firing

4 per Bn HHC x 3 Bn

Each Battalion Mortar Platoon

One Platoon per Battalion

4 X 120mm Mortar Carrier

Each Vehicle Stores & Transports:

M121 120mm System (Dismount for Firing)

and

M252 81mm System

1 FDC Vehicle with Two M23 MBCs

12 Mortar Carriers at Battalion Level

4 per Bn HHC x 3 Bn

Each Company Mortar Section

One Section per Company

2 X 120mm Mortar Carrier

Each Vehicle Stores & Transports:

M121 120mm System (Dismount for Firing)

and

M224 60mm System

Each Vehicle has a M23 MBC

18 Mortar Carriers at Company Level

RSTA Squadron

One Squadron per Brigade

6 X 120mm Mortar Carrier

Each Vehicle Stores & Transports:

M121 120mm System (Dismount for Firing)

Each Vehicle has a M23 MBC

6 Mortar Carriers in RSTA Squadron

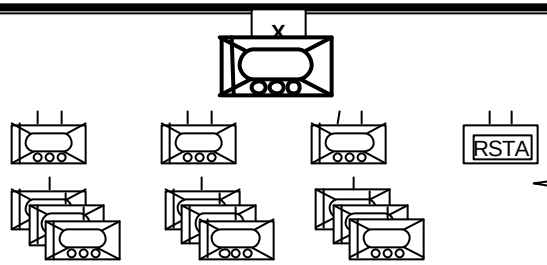
Plus 2 120mm MCs per Brigade (ORF)

Interim **Brigade Combat Team Mortars, Block Improvement:**

3rd through 6th Brigades (3rd Bde Fielding in FY04), 1st & 2nd BCTs retrofitted

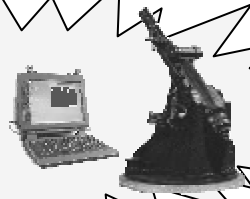
Ammunition Storage

120mm Only	**60 rounds**
Battalion (120/81mm)	**45 / 25**
Company (120/60mm)	**45 / 75**



Mortar Carriers: 36 (+2 ORF)

Block Improvement: Mountd 120mm and XM95 MFCS



Each Battalion Mortar Platoon

One Platoon per Battalion

4 X 120mm Mortar Carrier

Each with Mounted 120mm Mortar and XM95 Mortar Fire Control System (MFCS)

Each vehicle also transports:

M252 81mm System

1 FDC Vehicle with Two M23 MBCs for Dismounted Ops.

12 Mortar Carriers at Battalion Level

Each Company Mortar Section

One Section per Company

2 X 120mm Mortar Carrier

Each with Mounted 120mm Mortar and XM95 MFCS

Each vehicle also transports:

M224 60mm System

Each Vehicle has a M23 MBC for Dismounted Ops.

18 Mortar Carriers at Company Level

RSTA Squadron

One Squadron per Brigade

6 X 120mm Mortar Carrier

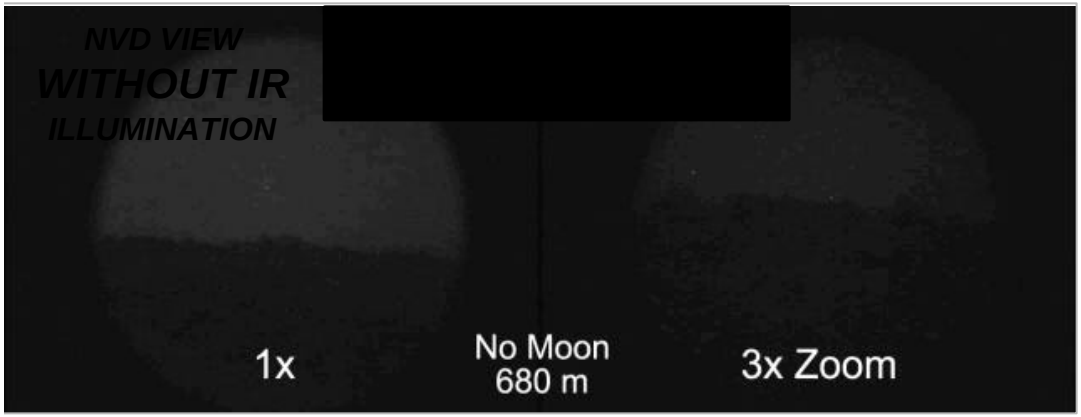
Each with Mounted 120mm and XM95 MFCS

Each Vehicle has a M23 MBC for Dismounted Ops.

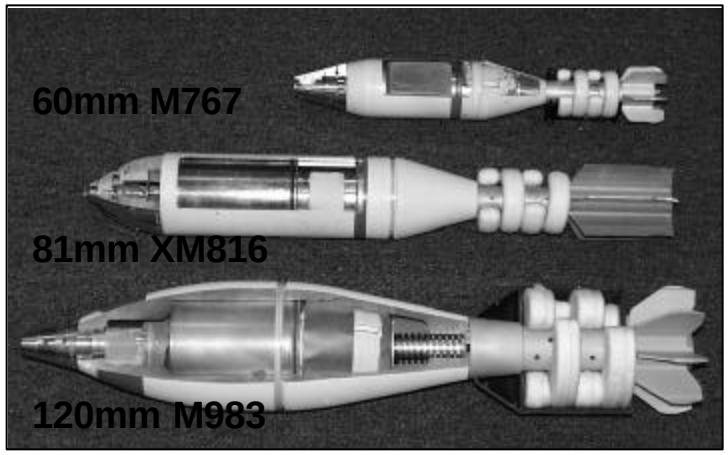
6 Mortar Carriers in RSTA Squadron

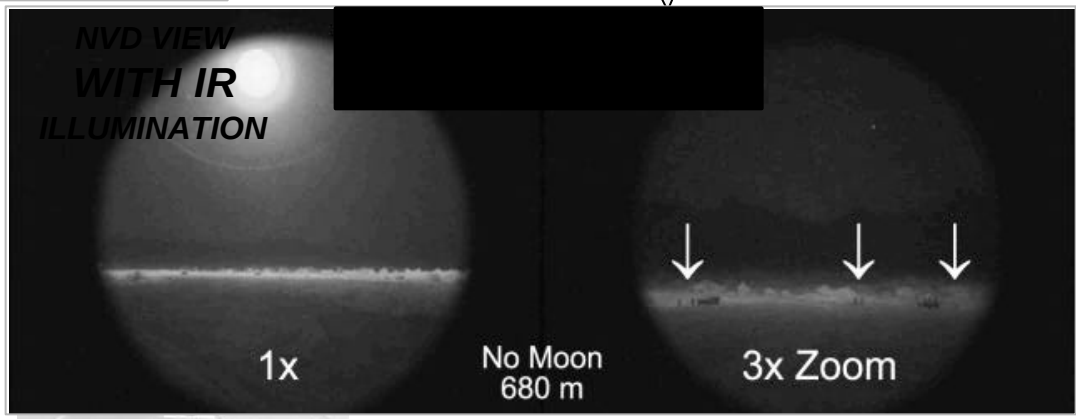
Plus 2 120mm MCs per Brigade (ORF)

World's First Mortar Infrared Illumination



Organic "Own the Night" Capability

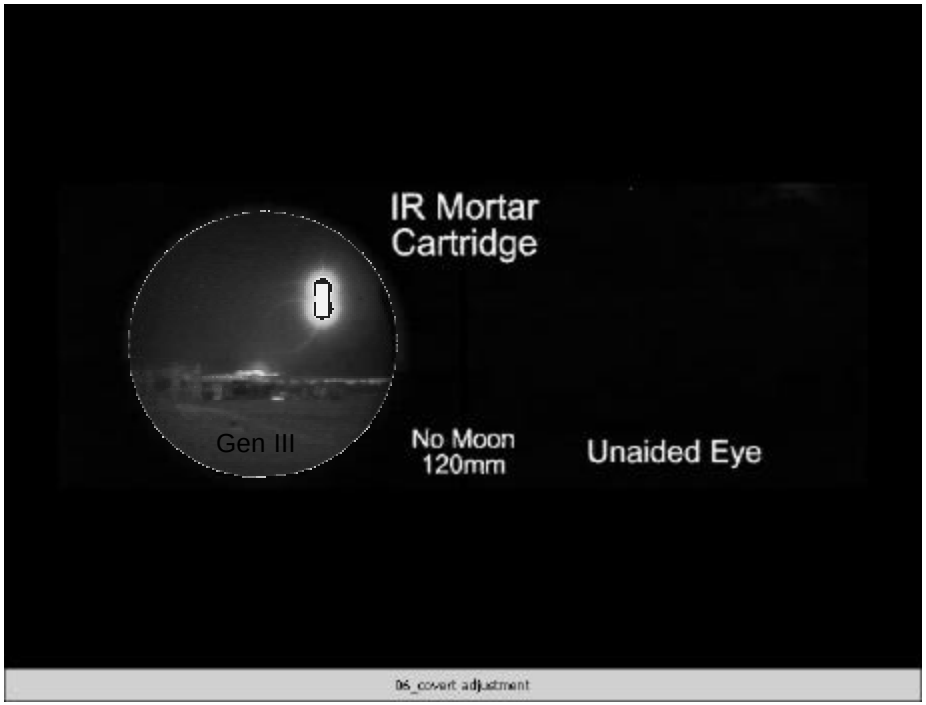


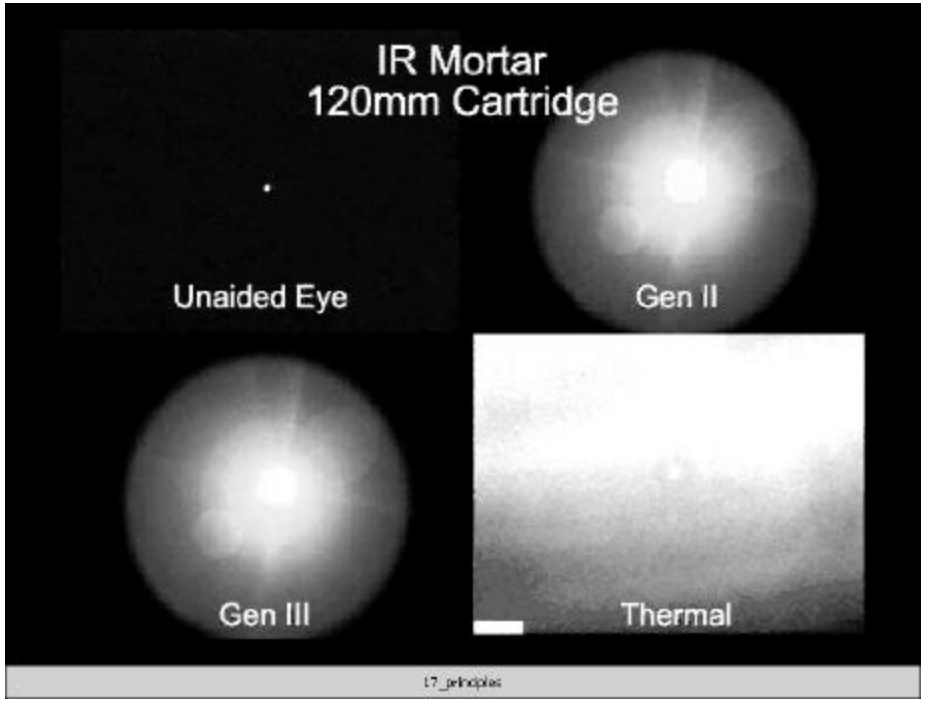


<u>Materiel Release (FY)</u>:
60mm M767 2Q01
120mm M983 4Q03
81mm XM816 1Q02

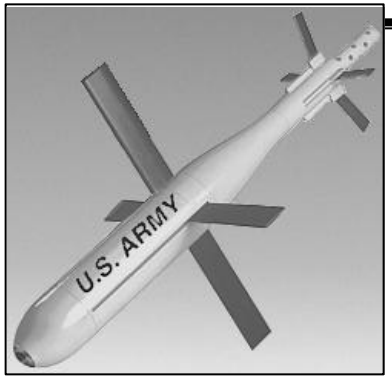
Enhancing Night Operations

IR Illum in Action
(Video Clips)





Precision Guided Mortar Munition (PGMM) Overview



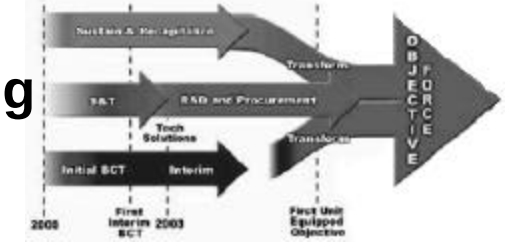
Prime Contractor:
- Lockheed Martin

Major Subs:
- Diehl (Germany)
- Draper Labs

Requirements:
- Destroy Hardened Point Targets
- Range: 12km (req'd)
  15km (des'd)
- Weight: < 40 pounds
- Length: < 40 inches

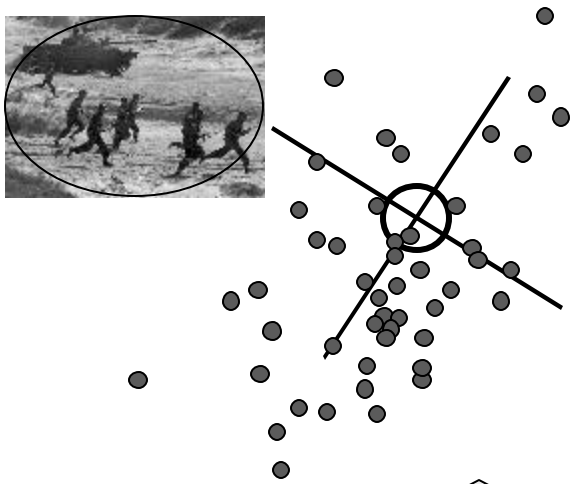
SAL=Semi Active Laser

- **Description**
  - 120mm Laser Guided Extended Range Munition (ATD)
  - Current ATD Design will be Fired with SAL & Inertial Guidance; and Lab Tested with SAL/Inertial/GPS
- **Weapon Platforms:** 120mm Mortar Systems
  - BCT
  - Heavy Forces
  - Light Forces (ARC)
- **Targets**
  - Primary: Threats in Protective Cover (bunkers, buildings)
  - Secondary: Vehicles (Light Wheeled & Heavy Re-supply)
- **Strategic Fit**
  - **Legacy: Combat Multiplier**
  - **Objective: Provides Enabling Technologies**
  - **Interim: Combat Multiplier**



Mortar Evolution:
Suppression and Precision

Today

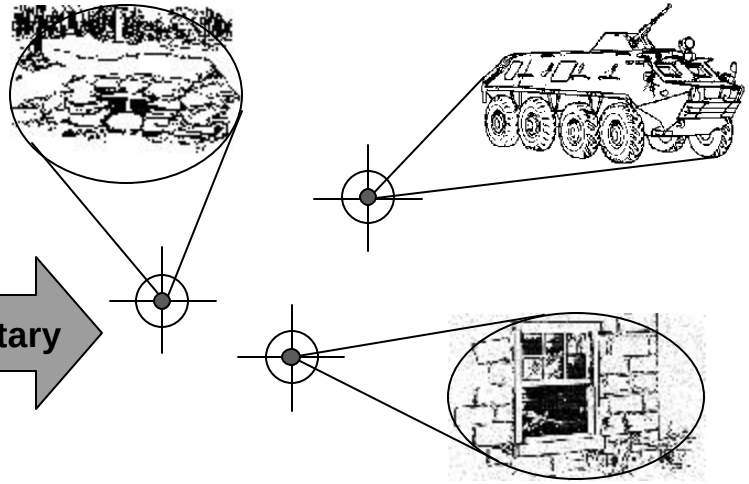


High Explosive

- Area effects
- High volume fire
- Defeat targets in the open
- Suppress personnel under cover

Complimentary

Tomorrow



Precision Guided

- Accuracy through extended ranges
- 1-2 rounds to hit
- Defeat personnel under cover
- Low collateral damage

PGMM gives Battalion Commanders Organic Precision Strike Capability

PGMM Warfighter Benefits

- **Immediate Response, Extended Range, Surgical Strike**
  - Organic capability for Battalion *and Company* Commanders
  - Force multiplier for Army in MOUT
- **No New Force Structure**
  - Conventionally fired mortar round
  - Fire Support, C^4I, Weapon, Soldiers & Training assets in place
- **Single Round Kill; More Stowed Kills per Combat Load**
  - Decreases demands for sustainment by increasing killing effectiveness
  - Low collateral damage
  - Greatly reduces logistics footprint
- **Increases Both BCT *and* Legacy Force Lethality**
  - 120mm Mortars are BCT's primary indirect fire asset
  - 120mm Mortars throughout Heavy Force
  - Ranger Regiment adopted Arms Room Concept
  - Light Divisions may also adopt Arms Room Concept (Unfunded)

Lethality
Accuracy
Range

Combat Multiplier, Low Cost per Kill, Precision Strike Capability

Mortar Fire Control System (MFCS)

Gunner's Display

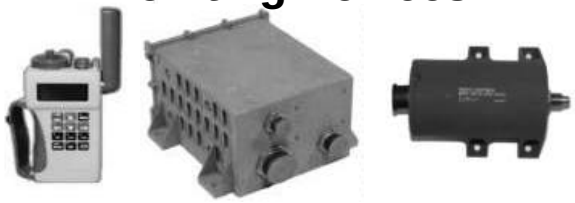
Alerts Gunner when Call for Fire is Received
Displays mission information
Used to position tube to firing elevation & azimuth

Digital & Voice Communications

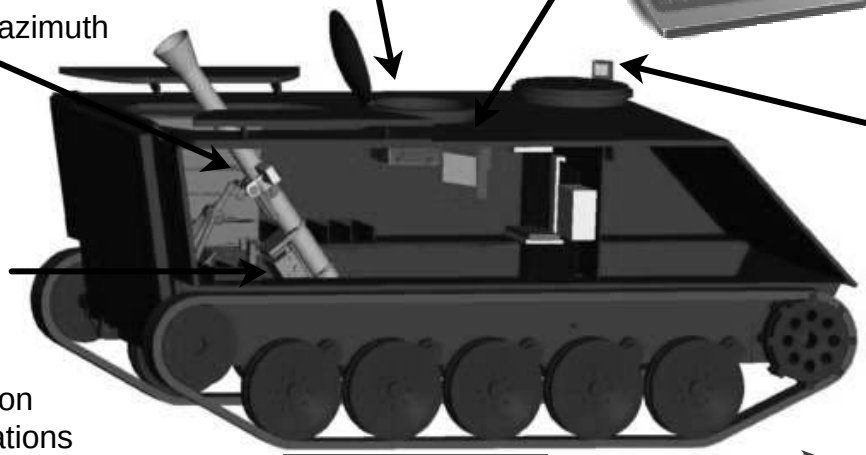
Commander's Interface (CI)

Translates digital messages into user prompts
Calculates ballistics, records mission data
Monitors system components

Navigation & Pointing Devices



Measures vehicle location & tube orientation
Sends information to CI for ballistic calculations and vehicle location (for Situational Awareness)



Driver's Display

Alerts Driver when Call for Fire is Received
Used to "Rough Lay" vehicle to firing azimuth (±20 mils)

FUE 3QFY02

Does for Mortars what AFATDS did for Artillery

Increased Mortar …

- ***Accuracy:*** **60m CEP (current is 230m)**
- ***Survivability:*** **No Dismount, Aiming Circle or Aiming Stakes; Dispersed emplacement (beyond line of sight)**
- ***Responsiveness:*** **First Round out < 1 minute (current is 8-12 min.)**
- ***Command & Control:*** **Digitally Linked to AFATDS**

FDC Vehicle (M577) not shown