Leap Ahead – 52 cal Artillery System

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Agenda

- History of the project
- Ballistics: JBMOU and Extended Range
- The ammunition systems
- Automation and firing performance
- Manpower requirements
- Mobility
- Conclusion and Questions

1. The G6-52 Development History

- During October 1989, ARMSCOR management challenged the industry to demonstrate that they have the technology to fire 60 km with 155mm Artillery, and funded the project.
- The development was designated “Project Losvoor”
- During March 1991, the first Losvoor demonstrator fired a range of 64km with a base bleed projectile.
- In 1992, an URS was defined and approved, taking into account possible future international requirements. It was decided to focus on both range and rate of fire.
- System development commenced in 1992.

The G6-52 Development History (cont.)

6. **The original charge system: M62 uni-modular charge system and a stand alone M63 top charge. Range of 50 km with base bleed and 60 km with VLAP from a 25 liter chamber**

- **Detour during 1995: It was decided to field the autonomous Losvoor turret for trials on a tracked chassis as the T6. The T6 was finally successfully fielded on the Arjun MBT chassis during 2000**
- **In 1995 it was decided to have two ballistic options on the G6-52**

T6-52

Similar turrets

G6-52

The G6-52 Development History (cont.)

9. **M62/63 Qualified in 1996: Used for further system development**
10. **M64 Bi-Modular charge developed and qualified in 2002 for G6(45 cal), M109L47 and G6-52**
11. **The following ammunition was qualified in 2002 with the M64 charge system:**

- **Pyrotechnic Carrier projectiles**
- **Submunition**
- **Base Bleed – Field interchangeable**
- **Fuzes – Direct, Proximity and Time**
- **HE and VLAP up to Zone 5**

THE FUTURE

12. **In 2003 it was decided not to qualify HE and HE-VLAP with TNT filling, but with IM (Insensitive Munition) filling only. This is scheduled for final qualification in 2005.**

2. The G6-52: The 2 ballistic options

JBMOU G6-52	Feature	Ext range G6-52L
52 cal	Barrel Length	52 cal
23 l	Chamber volume	25 l
Assegai M2000	Projectiles	Improved ERFB M9
M90 series	Charges	M64 series
950 m/s	MV at Std	1015 m/s
335 MPa	Pressure at Std	420 MPa
985 m/s	MV Max	1050 m/s
18 000	Setback G's	20 000
42 km	Range Base Bleed	50km
55 km	Range HE-VLAP	67 km
42,6 kg	Projectile mass Zone 2	45,2 kg

3. The G6-52 Extended range ammunition

New HE projectile

Improved Extended Range Full Bore

Increased diameter and reduced tolerance on nubs

New double driving band of improved material

Increased strength to cope with higher pressure and setback

Status:

Qualification with TNT filling was not completed due to decision to qualify only with IM

The G6-52 Extended range ammunition (cont.)

New Cluster projectile

(submunition)

Same improvements as on HE

42 bomblets with 120 mm armour penetration

Self destruct fuze

Base bleed compatible

50km range

Status:

Qualified in 2002

The G6-52 Extended range ammunition (cont.)

The Pyrotechnic Carrier projectiles

Red Phosporous

Illumination

Screening smoke

Bi spectral screening smoke

Bodies same improvement as HE

All Base Bleed compatible

All 50km range

Status:

Qualified in 2002

The G6-52 Extended range ammunition (cont.)

New Base Bleed

Improved Body

Male Thread for improved propellant volume

6 hole exit nozzle for improved “bleed”

Field fittable on all types of projectiles

Status:

Qualified in 2002

The G6-52 Extended range ammunition (cont.)

The HE-VLAP projectile

Same body improvement as HE

Combined Base Bleed and Rocket Motor

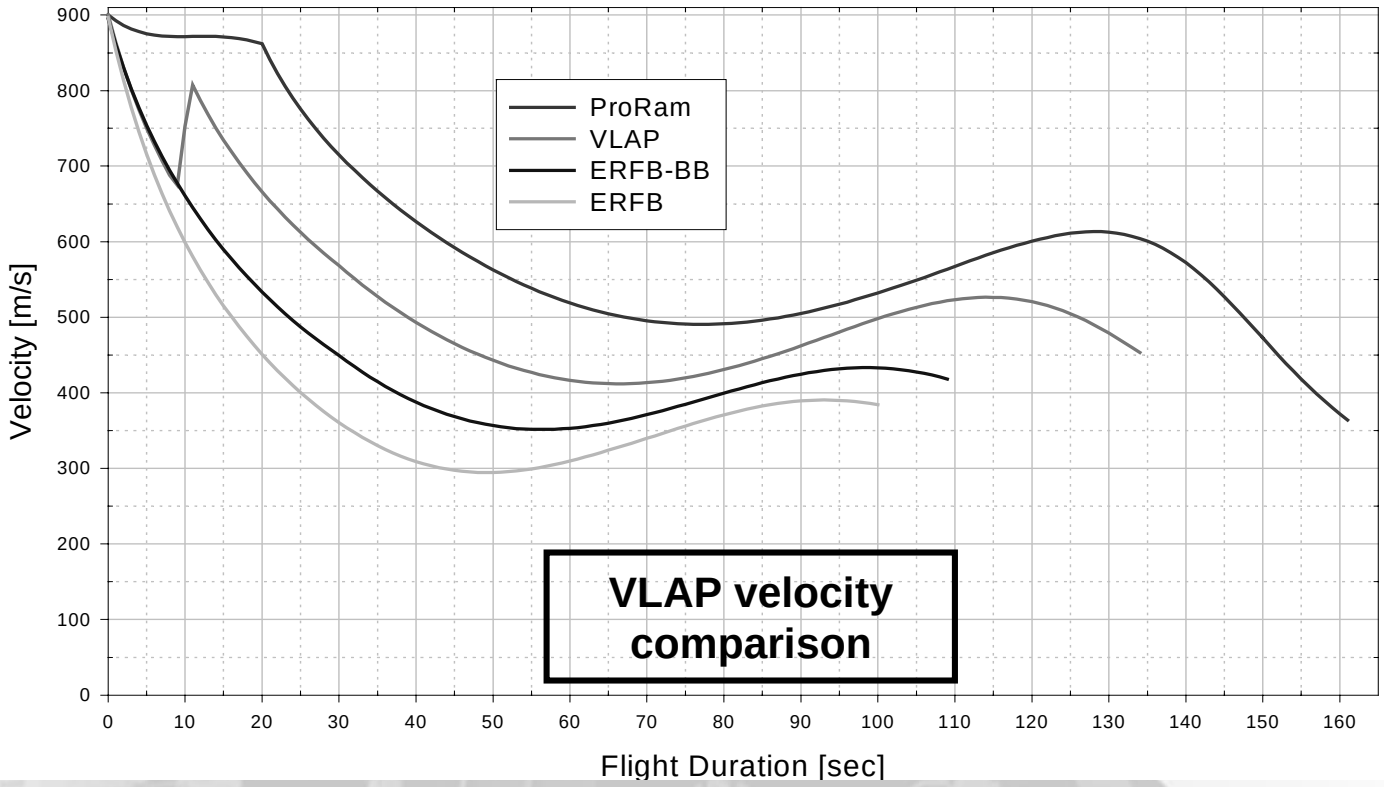
67 km range

Terminal effect 60% of HE

Status:

To be Qualified with IM filling in 2005

The G6-52 Extended range ammunition (cont.)



The VLAP has been developed for:

Harassment

Interdiction

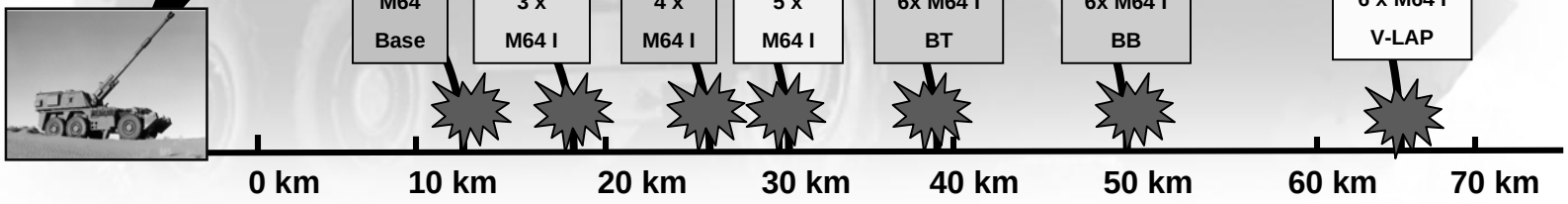
Area Denial

The G6-52 Extended range ammunition (cont.)

The M64 Bi-Modular charge system

Combustible case, flexible, low barrel erosion

Range with M9 series ERFB



The G6-52 Extended range ammunition (cont.)

Proximity **Electronic time** **Direct (SQ)/ Delay**

Status:

All fuzes Improved and qualified for increased setback and muzzle velocity

The G6-52 Extended range ammunition (cont.)

Dispersion: PE

Boat tail and Base bleed

Specification at 75% of max range:

0,48% in range

0,1 % in line

Best Achieved:

0,12% and 0,05% at 37Km with base bleed during a demo in July 2003

For VLAP, the specification is 0,6% in range and 0,15% in line

Best Achieved:

0,32% and 0,1% during qualification

The G6-52 JBMOU range ammunition

The Assegai M2000 range of projectile for the JBMOU ballistic option

Shared fuzes, base bleed and payloads in a nubless JBMOU projectile design

IHE **RP**

Cluster **VLAP** **Illum** **Smoke**

The G6-52 JBMOU range ammunition

The M90 Bi-Modular charge system

4. The G6-52: Automation

3D view: Ammunition handling layout