

NASM-SR Missile Salvo Test: How NASM-SR Missile Salvo Test Strengthens India's Naval Power

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NASM-SR Missile Salvo Test Latest News

- India recently advanced its naval strike capabilities as the DRDO and the Indian Navy successfully conducted a salvo test of the indigenously developed **Naval Anti-Ship Missile Short Range (NASM-SR)** from a helicopter off the Odisha coast.
- Two missiles were fired in quick succession from the same platform, marking the first successful salvo launch from a chopper.
- The NASM-SR is designed for deployment from ship-borne helicopters and represents an upgrade over existing systems.
- It incorporates advanced features such as **“man-in-loop” guidance**, allowing real-time control during flight, and **“waterline hit” capability**, which enhances its effectiveness in disabling enemy ships.
- The test highlights the growing importance of helicopter-launched missiles in enhancing naval flexibility, precision strike capability, and maritime dominance.

Role of Helicopter-Launched Missiles in Naval Warfare

- Helicopter-launched missile systems like the NASM-SR enhance naval combat capability by allowing forces to strike enemy ships from a safe distance without exposing their own vessels to direct threats.
- This is crucial for **anti-surface warfare** and **maintaining sea control** in contested maritime zones.
- The Indian Navy already uses systems like the British-origin **Sea Eagle missile** deployed on Sea King 42B helicopters, enabling ship-based helicopters to launch precision strikes.
- This flexibility makes such systems highly effective in modern naval operations.

Need for NASM-SR: Modernising India's Naval Missile Capability

- The older Sea Eagle missiles, introduced in the 1980s, have become outdated and lack modern technological capabilities. A major drawback is their heavy weight (around 580 kg), limiting the number of missiles a helicopter can carry.
- To address these limitations, the **DRDO** initiated the development of a lighter, more advanced, and indigenous missile in the early 2010s, aimed at enhancing operational flexibility.
- The project involved multiple premier DRDO laboratories, including:
 - Research Centre Imarat (Hyderabad)
 - Defence Research and Development Laboratory

- High Energy Materials Research Laboratory (Pune)
- Terminal Ballistics Research Laboratory (Chandigarh)
- The NASM-SR is being produced with the participation of private sector partners, MSMEs, and start-ups, strengthening India's indigenous defence manufacturing ecosystem.

NASM-SR Missile: Design and Key Features

- The NASM-SR missile is designed with a **two-stage propulsion system**, comprising a solid booster rocket for initial thrust and a long-burn sustainer engine for extended flight.
- It is equipped with advanced subsystems, including a **seeker** for target detection and tracking, a **radio altimeter** to measure altitude above sea level, and a high-bandwidth **two-way data link** that enables real-time communication between the missile and the operator in the helicopter.
- Weighing around 380 kg, it is significantly lighter than older systems, allowing helicopters to carry more missiles.
- Although its range (55 km) is lower than that of earlier missiles, it compensates with improved technology and operational flexibility.
- The missile uses a **radio proximity fuse** to detonate its warhead when it reaches close proximity to the target, ensuring effective impact.

Advanced Capabilities of NASM-SR: 'Man-in-Loop' and 'Waterline Hit'

- Many modern navies have helicopter-launched missiles that have these two features: 'man-in-loop' and 'waterline hit'.

'Man-in-Loop' Guidance

- The NASM-SR incorporates a "man-in-loop" feature, allowing a human operator to modify the missile's trajectory during flight.
- Enabled by a two-way data link, this system provides real-time feedback and control, making the missile more precise and adaptable.
- It is particularly useful in crowded maritime environments, reducing the risk of accidental targeting and improving effectiveness against moving or evasive threats.
- Unlike older **"fire-and-forget"** missiles such as the Sea Eagle, which cannot be redirected after launch, the NASM-SR's guided control ensures greater operational flexibility and accuracy, especially in dynamic combat scenarios.

'Waterline Hit' Capability

- Another key feature is the "waterline hit" capability, where the missile targets the area just above or at the waterline of a ship.
- This is a **structurally vulnerable point**, and a strike here can cause severe damage, rapid flooding, and potentially sink the vessel.

- This precision targeting significantly enhances the missile's lethality compared to earlier systems lacking this capability.

NASM-SR Salvo Test: Demonstrating Enhanced Strike Capability

- The recent test involved firing two NASM-SR **missiles in quick succession** from a single helicopter, showcasing the system's ability to execute a salvo launch.
- The test has operational significance:
 - Demonstrates capability to overwhelm enemy ship defence systems
 - Enhances effectiveness in real combat scenarios
 - Increases chances of successful target neutralization
- The salvo test highlights a major leap in India's naval strike capability, combining precision, survivability, and multi-target engagement to strengthen maritime warfare readiness.

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