

# Tetraedr outlines new upgrade for S-125M

**T**etraedr has released details of the S-125-2TM Pechora-2TM upgraded version of the S-125M Neva-M (SA-3 'Goa') surface-to-air missile system, writes **Miroslav Gyürösi**.

Developed and now being manufactured for an undisclosed customer, the 2TM variant is the latest stage in the Belarus company's evolving upgrade programme for the S-125M.

Like those earlier upgrades, the scheme is intended to improve lethality, maximise resistance to electronic jamming, extend the system lifetime by replacing older electronics hardware with modern solid-state components, and provide a high level of survivability on the modern battlefield.

Mobility has been improved by reducing the number of vehicles and trailers that make up the complete system, and by mounting the hardware on self-propelled or towed wheeled platforms.

A complete system consists of:

- an UNV-2TM antenna unit installed on UV-600-2TM trailer;
- a MAZ-6317 truck chassis with antenna unit folding/unfolding equipment set;
- an UNK-2TM command-and-control shelter installed on a MAZ-6317 truck chassis;
- four 5P73-2TM launchers with electro-mechanical system for folding and unfolding;
- an SAES-2TM electrical generator (or an equivalent with similar characteristics);
- PR-14 transporting and loading/reloading vehicles equipped with 5V27 missiles; and
- an optional SRTZ-2TM system to protect against attacks by anti-radiation missiles.

The UNK-2TM command-and-control shelter is intended for use in the S-125-2TM Pechora-2TM scheme and in the older S-75-2T Volga-2T upgrade. The only changes required for the two applications involve software.

The detection, processing, data and command transfer processes have all been automated by use of digital technology. By using signal correlation-filtering processing and a digital form of Moving Target Indicator (MTI), the Belarus design team has increased the system's resistance to active and passive countermeasures, while the availability of an optronic target-track-

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|---|---------------------|
| Minimum RCS of detected targets                                   | 0.02 m <sup>2</sup> |
| Maximum range of detected aerial target (RCS = 1 m <sup>2</sup> ) |                     |
| - flying at heights of 65-23,000 ft                               | 75 km               |
| - flying at heights above 23,000 ft                               | 100 km              |
| Engagement range  | 3.5-35.4 km         |
| Engagement height   | 65-82,000 ft        |
| Maximum speed of aerial targets                                   |                     |
| - approaching   | 900 m/sec           |
| - retreating  | 300 m/sec           |
| Single-shot kill probability                                      |                     |
| - at ranges up to 20 km   | 0.85-0.92           |
| - at ranges of 25 - 30 km   | 0.89-0.90           |
| Resistance from jamming   | 2700 W/MHz          |
| Setting up time   | 25 minutes          |
| Activation time of the system                                     | 3 minutes           |
| Time needed to prepare for movement                               | 20 minutes          |

Jane's: 1295034



Tetraedr: 1290460

> The new phased-array command-guidance antenna mounted at the top of the trailer-mounted UNV-2TM antenna unit is smaller than the original parabolic antenna.

ing channel allows reliable operation in the presence of severe jamming.

The weight and size of the UNV antenna unit that forms part of the system's SNR-125 'Low Blow' tracking and missile-control radar have been reduced by the use of a replacement radar receiver subsystem, and the use of a new phased-array command-guidance antenna that is smaller than the original parabolic antenna unit.

The S-125-2TM has two target channels — one based on radar, the other using optronics — and two channels for missile guidance. The target channels can operate

independently, allowing the simultaneous engagement of two targets.

Kill probability has been increased by the use of two Tetraedr-developed guidance modes. Known as the KDU kinematic differential guidance and modified MTT three-point guidance methods, these have been proven by earlier upgrade schemes by the company.

If the maximum kill probability is needed, two missiles can be fired in salvo against a single target. The upgraded system is intended to provide a higher kill probability with a single missile than the unmodified system could achieve using a two-round salvo.

An S-125-2TM battery can operate autonomously or be integrated to any type of air-defence system, accepting data from a wide range of military or air-traffic-control surveillance radars. The hardware is cleared to operate in temperatures of -40C to +55C, but if sited more than 10,000 ft above sea level it can cope with occasional temperatures of up to +60C. It is able to handle wind speeds of up to 30 m/sec and specific humidity of up to 98 per cent.

Tetraedr offers customers the option of having all vehicles and trailers fitted with GPS/GLONASS satellite navigation systems. These will speed the process of deploying the system at a new site and establishing the correct orientation of the various vehicles and trailers. ●

## ANTI-SHIP & ASW

# Indonesia considers C-802 missile for future frigates

Indonesia is considering arming its future quartet of Sigma-4-class missile frigates with Chinese-built C-802 anti-ship missiles, writes **David C Isby**.

The four warships, which are being constructed in the Netherlands, were originally planned to be armed with MBDA MM40 Exocets.

Problems with securing export approval for the frigates' Exocet MM40 anti-ship and Mistral surface-to-air missile armament have already been reported.

Indonesia is understood to have procured and evaluated a single C-802 system as part of a study of alternative anti-ship missiles.

While it seems unlikely that the Chinese

missile will be adopted for the Sigma-4 class in place of the MM40, the C-802 is being considered along with other designs as a potential anti-ship weapon for future Indonesian surface-combatants.

The Indian-Russian BrahMos and the Russian Yakhont (SS-N-26) have also been identified as possible alternatives. ●

