

# Media tour to Russia - Part II

(cont'd from Issue 4 Jul/Aug 2021)

## Almaz-Antey factory visit

Every once in a while, the world comes across a weapon system that wields a disproportionate amount of strategic and political influence. From HMS Dreadnought to the Shah of Iran and his F-14's this article chooses to concentrate on a slightly more 'up to date' example, the S-400 Triumf.

## What is the S-400?

The S-400 is the most dangerous, operationally deployed, modern long-range Surface to Air Missile (SAM) system in the world. With a maximum effective

range of up to 400km (215 nautical miles), the system can reportedly track up to 100 airborne targets and engage six of them simultaneously. Additionally the S-400 reportedly has the capability to counter low-observable aircraft and precision-guided munitions, all while being retaining flexibility and remaining extremely mobile. The S-400 system, whilst commonly thought of as a single missile-toting truck, is a multi-element system comprising two batteries, each with a command-and-control system, one surveillance radar, one engagement radar, and four TEL (Transporter-erector-launcher) trucks.

The S-400 operates in the following way:

1. The Long-range surveillance radar tracks object and relays information to command vehicle for target assessment.
2. After the target is identified, a missile launch is ordered by the command vehicle.
3. The launch vehicle which is placed in the best position gets the launch data and releases the missile.
4. The missile is then guided toward the target with the help of the engagement radar.

This Russian system serves as an excellent example of an anti-access/area-denial (A2/AD) system. The idea of A2/AD is to prevent an opposing force from entering an area and limit an opposing force's freedom of action in said operational area. Customer deployments of the S-400 reveal that such systems tend to offer broad strategic effects, while not the first SAM to threaten aircraft hundreds of miles away (the SA-5, deployed since 1966, has a range of 150 nautical miles) the S-400's capabilities render it far more dangerous than a traditional defence-oriented SAM system. With an ability to engage a wide range of targets, including stealth aircraft and cruise missiles, its range against aircraft operating at medium or high altitudes can threaten aircraft in neighbouring countries within their own air space. This capability alone raises the risk of operating expensive aircraft anywhere near a deployed S-400 system. Costing the tax payer a few million dollars, a single missile from an S-400 battery could potentially bring down an opposing asset worth hundreds of millions of dollars, doing so from farther away than any adversary SAM has yet been capable of. The S-400 thus offers a favourable cost ratio that could potentially influence decision-making at strategic levels.

The S-400 system will enable Indian forces to deter or influence the behaviour of aircraft and the application of airpower in peacetime. Russia's deployment in Syria has already illustrated this possibility.



*S-400 Transporter-Erector-Launcher truck being deployed at Almaz-Antey NWRC*