Israel, Syria: Upgrades and an Unchanged Air Defense Dynamic

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Summary

Russia reportedly has sent technicians to help Syria upgrade its air defense network following the Israeli air force (IAF)'s Sept. 6 use of a new electronic warfare system to penetrate Syrian airspace. While the existence of both the new Israeli system and the Russian assistance are quite possible, neither alters the fundamental dynamic between the IAF and the Syrian air defense network.

October 03, 2007 14 13 GMT

Analysis

The Israeli air force (IAF) employed a new electronic warfare system in its Sept. 6 raid on Syria, and Russia afterward sent technicians to help upgrade the Syrian air defense network, London daily The Times reported Oct. 2. Neither of these plausible possibilities would alter the fundamental dynamic between the IAF and the Syrian air defense command.

With 60,000 troops, the Syrian air defense command is larger than the country's navy and air force combined. The country is covered by some 150 surface-to-air missile batteries, with the heaviest concentrations along the Israeli border, along the Mediterranean coast and at Damascus. Reportedly, minor reshuffling has occurred lately to improve coverage of Syria's borders with Turkey and Iraq.

But despite its scale, the Syrian air defense system has largely faded to obsolescence. The bulk of Damascus' strategic defensive systems were delivered by the mid-80s, and the Arab nation's source of meaningful air defense assets evaporated with the Soviet Union.

The core of the Syrian air defense system remains the SA-2 and SA-3. The SA-2 was first fielded more than half a century ago, and the SA-3 just few years later. Syria's longest-range air defense asset is the SA-5 "Gammon" (a design that is more than 40 years old). This system was soundly defeated by U.S. electronic countermeasures (ECM) and anti-radiation missiles in Libya in 1986.

But systems can be upgraded, of course. Russia offers all manner of hardware and software upgrades (some of which might now be under way) and even Ukraine and Serbia peddle equipment and upgrades relevant to the Syrians' network. Meanwhile, Syria has certainly not remained idle in the past decade. Damascus learned much not only from the devastating air campaign against Iraq in 1991 but also from the subsequent interactions of the remnants of Iraqi air defenses and U.S. and British enforcement of the two no-fly zones imposed on Iraq after Desert Storm.

Though there are certainly air defense lessons for Damascus to learn, Syrian air defense has nothing like the integration, sophistication, command and control, or readiness that Iraq demonstrated before Desert Storm, and the quality of personnel is just as important. The alertness of a Bosnian Serb SA-6 crew brought down a U.S. F-16 in 1995 and the ingenuity of a Serbian SA-3 crew in 1999 brought down the only F-117 Nighthawk stealth fighter ever lost to hostile fire. Neither Syria's exercises nor its responsiveness to repeated IAF incursions exemplify this kind of training or readiness. Overall, the Syrian military is plagued by much more fundamental issues like nepotism, corruption and a garrison mentality.

Many of the weaknesses of the Syrian air defense network also inescapably are linked to the hardware itself. The SA-2, SA-3 and SA-5 systems are either static or extremely difficult to move, making them easy to avoid, easy to target with electronic countermeasures and easy to kill. Both the radars and the missiles themselves are susceptible to modern ECM and decoys (and Israeli upgrades far outpace any upgrades Syria has been able to make). The missile batteries also must be in active mode and radiating to have any kind of lethality, but his is when they are most vulnerable to anti-radiation missiles. The SA-6 -- which Syria also fields in great numbers -- is mobile, but it suffers from these other vulnerabilities. Syria has attempted to compensate for its air defense system's obsolescence through density, concentrating these systems in key areas with heavily overlapping coverage.

The sheer density of Syrian defenses in key locations means its air defenses cannot be dismissed out of hand. But density and other half-measures are crude counters in the era of GPS-guided and standoff munitions. Illustrating this point, the IAF repeatedly has overflown Latakia and might have penetrated the dense network along the Mediterranean

coast twice Sept. 6.

Syria probably could bring down a handful of Israeli warplanes in a full-scale IAF onslaught. But Syria lacks the equipment, integration and technology to oppose that onslaught effectively, meaning it does not act as a deterrent to an Israeli attack.

Modern air defense does not come cheaply no matter how one approaches the matter. Both the United States and Israel ensure first and foremost through superior airpower. Neither country has been in a position where its air superiority has been challenged meaningfully in decades. Moreover, multiple successful campaigns of suppression of enemy air defenses (SEAD) have lent validity to -- if not credence to the superiority of -- the concept of airpower-based air defense.

Due to geopolitical realities, the Soviet Union was far more focused on land-based air defense for the entire Cold War. Moscow constructed a formidable air defense network that the United States and NATO took extremely seriously. But this system came at a massive cost.

Syria's network was only possible through the sponsorship of the Soviets, who armed Syria to counter U.S. sponsorship of Israel. Following a humiliating defeat of Syria by the IAF in which the Israelis completely dominated the air and the electromagnetic spectrum in 1982, the Soviets shipped coveted long-range SA-5s to Damascus.

Today, Moscow is selling only multiple-launch equipment for the SA-18 man-portable air-defense systems (MANPADS) and some 50 truck-mounted Panstyr-S1E close-in air defense systems (for which the United Arab Emirates is known to have spent nearly $750 million, or roughly half Syria's entire annual defense budget). Most other rumors concerning Syrian acquisitions involve this category of systems. While capable and dangerous, these systems have extremely limited range and cannot provide Damascus with a meaningful air defense capability. Even in the cramped Golan Heights, the threat they pose would be to low-flying close-air-support aircraft and helicopters. Syrian cannot win a war with that kind of coverage.

Today's equivalent to Soviet support in the early 1980s would be Moscow shipping modern S-300 batteries to Damascus in an immediate and unequivocal response to the Sept. 6 IAF incursion. Syria is desperate for the S-300 system, and rumors of its delivery have circulated for nearly a decade without corroboration, but it is unclear whether Syria can afford even a single battery, much less sufficient numbers for a systemic upgrade. This purchase would require both a seller and a generous financier. Instead, the most active role Russia is rumored to be playing involves sending some technicians to help upgrade the system.

The problem for Syria is that today's Kremlin differs from the Soviet Kremlin. If Russia had the resources the Soviets enjoyed, Moscow might consider it. But production is limited, and many considerations surround air defense exports. Ultimately, the neglect that Syrian air defense acquisition and modernization have suffered in the last decade cannot easily be undone.

Russian technicians -- even exceptionally well-funded and well-equipped ones -- cannot fundamentally alter the dynamic between Syria's air defense network and the IAF. Syria occupies the unfortunate position of being the only military power openly hostile toward Israel and directly contiguous to the Jewish state -- which of course continues to enjoy U.S. sponsorship and all the technological advantages such sponsorship entails. Even with Soviet sponsorship, Syria repeatedly failed to hold up in the face of the IAF (even when its equipment was more current), and that is not a dynamic that will change soon.

Israeli Overflight and the Syrian Response
September 06, 2007 14 06 GMT

The Syrian army's air defenses fired Sept. 6 on an Israel air force (IAF) warplane that entered Syrian airspace and "dropped ammunition," SANA, the official Syrian news agency, reported.

After midnight local time Sept. 6, the Israeli aircraft entered Syria through the northern border, coming from the Mediterranean Sea and heading toward the eastern region, SANA reported, citing an unidentified government spokesman. Local residents said they heard the sound of five or more planes above the Tal al-Abiad area on Syria's border with Turkey, about 52 miles north of the Syrian city of Rakka. It is unlikely that a single plane would be operating without at least one wingman, and the area Syria claims the ammunition drop took place is deep inside the country. The IAF plane or planes apparently avoided the dense air defense network near the Israeli border and around the Syrian capital, Damascus. This is the same area the IAF successfully penetrated in the summer of 2006 to buzz Syrian President Bashar al Assad's summer home in Latakia.

This incident unlikely was intended to be an Israeli attack against Syria. While the situation is still unclear, several things could have occurred. Like any good air force, the IAF has clear standard operating procedures that dictate what a pilot

does when his aircraft detects enemy radar illuminating it or identifies a missile launch, or when the pilot visually sees anti-aircraft artillery fire. Under these procedures, the pilot would immediately jettison external fuel tanks or extraneous ordnance in order to facilitate maneuverability and save his aircraft. This is likely what the Syrians are referring to when they accuse Israel of dropping ammunition in the desert.

The IAF is the most competent air force in the region. Were it to attempt to strike a target in Syria, that target more than likely would have been hit. Israel Defense Forces remains mum on the subject, and no evidence of an external fuel tank with Israeli markings has yet been presented.

Since the Israel-Hezbollah conflict in the summer of 2006, Israel has conducted regular reconnaissance missions into Syria. These overflights are embarrassing for Syria, since the country's air defense is ill-equipped to respond in time. Though Israel and Syria have stepped up rhetoric in recent months, accusing each other of provoking a military conflict, this is largely posturing. Israel has no interest in destabilizing the al Assad regime right now, and though the Syrians will play up Israeli violations of Syrian airspace, they are nowhere near capable or confident enough to start up a military confrontation with the Jewish state.

Syria: Israeli Warplanes Buzz al Assad's House
June 28, 2006 17 45 GMT

Erratum: In the original version of this piece, Damascus was identified as the location of al Assad's residence. It has been corrected to say Latakia, his summer residence.

Summary

Israeli warplanes flew over Syrian President Bashar al Assad's summer residence in Latakia, Syria. Israel is sending a message to the Arabs that if Cpl. Gilad Shalit, the Israeli soldier abducted June 25 by Palestinian militants, is killed, it will escalate matters beyond the territories. Israeli Prime Minister Ehud Olmert cannot afford to negotiate with the Palestinians in the event that the Israeli soldier does not return home alive.

Analysis

Israeli aircraft flew over the home of Syrian President Bashar al Assad in Latakia, Syria, on June 28. Earlier the same day, Israeli Public Security Minister Avi Ditcher made it clear that Syrian-based leaders of the ruling Palestinian Hamas party will be targeted for assassination in retaliation for Shalit's kidnapping. Hamas leader Khaled Meshaal was publicly blamed for the kidnapping.

The pass over al Assad's residence is an effort by the Israeli government to warn Hamas and its Syrian backers that the Jewish state is prepared to go to great lengths if Cpl. Gilad Shalit, the Israeli soldier being held by Palestinian militants, is harmed.

The hostage situation is a nightmare scenario for Israeli Prime Minister Ehud Olmert, because his government would be at stake if Shalit were killed and Olmert proceeded with negotiations with the Palestinians. Olmert's government has no choice but to take extreme action in the wake of Hamas' abduction of the soldier and reassert Israeli power against its Arab neighbors. By upping the ante and taking the matter to Syria, where Hamas' exiled leadership is based, Olmert is trying to pre-empt his opponents, who would use the situation as evidence that his ruling Kadima party has made Israel vulnerable with its disengagement plan.

Throughout the years, the Israeli air force (IAF) has demonstrated that its aircraft can penetrate Syrian airspace with impunity, as in the all-out air battles over Damascus in the "War of Attrition." The IAF fighters flying by al Assad's house would have penetrated Syrian airspace by flying very low and very fast. The pass would have caused a sonic boom, followed by the deafening roar of jet engines, which could have broken windows, knocked items off of shelves and alarmed everyone present. Those watching from outside would have seen the jets pass by silently, and the noise would have followed seconds later.

Syrian air defenses, which were once quite formidable, have atrophied since the end of the Cold War, during which Moscow supplied Damascus with the latest in air defenses. The Syrian air force is not a threat to the Israelis, and the speed involved in the operation would have made it difficult for surface-to-air missile batteries to respond.

Pressure is now on Hamas, especially its Damascus-based leadership and its sponsors in al Assad's regime. Given that the Israelis are not ready to negotiate for the release of the soldier, Hamas will be pressured to release him, which could result in the weakening of Hamas' domestic position.

Russia: The Fundamentals of Russian Air Defense Exports
August 24, 2007 16 04 GMT

Summary

Russia displayed the new S-400 surface-to-air missile system at the MAKS 2007 air show in Moscow that began Aug. 21. Although Belarusian Defense Minister Col. Gen. Leonid Maltsev expressed interest in acquiring it, Moscow is not ready to export the S-400.

Analysis

Russia displayed its latest surface-to-air missile system, the S-400 Triumf, at the Aug. 21-26 MAKS 2007 air show in Moscow. The system was tested successfully in July and is now slowly being deployed around Moscow. Other countries, including Belarus, are keenly interested in the latest air defense technology. However, Igor Ashurbeily, CEO of S-400 producer Almaz Central Design Bureau, made it clear Aug. 23 that the system will not be exported until 2009. Russian air defense considerations, financial prudence and foreign policy all tend to argue for even longer delays in export.

History

Air defense is hardwired into the Russian military psyche. For much of the Cold War, Russia was at an extreme disadvantage in terms of intercontinental reach -- especially in terms of aerial reconnaissance and strategic bombers. To put it simply, Russia was more vulnerable to U.S. reconnaissance planes and strategic bombers than the United States was to Soviet planes.

Part of this is geography, part is history. The United States began designing an intercontinental bomber to reach Tokyo the moment the Japanese fleet bombed Pearl Harbor. The Russians, on the other hand, were fighting a massive and devastating land war against the seasoned German army. They had little time or patience for the niceties of long-range aviation. That disparity defined how each emerged from World War II to wage the Cold War. Air defense -- particularly surface-to-air missiles -- was consequently a major strategic consideration for the Soviets.

Today

At the apex of this tradition are the late models of the S-300 series, especially the S-300PMU2, which are renowned as some of the best air defense hardware money can buy. Their range and capability make them coveted strategic defensive assets. With exceptionally long ranges, they can reportedly engage stealth aircraft and low-flying cruise missiles, and even intercept shorter-range ballistic missiles.

The S-400 is the most recent variant. Despite the new designation, at one point the program was known as the S-300PMU3. The S-400 is quite similar to its older cousins, especially in outward appearance.

If the nomenclature here is beginning to get a bit dense, that is no accident. The Soviets became quite adept at clouding their military capabilities by using confusing basic distinctions. Two "variants" of the same system could bear little apparent and even less actual resemblance to one another.

This also cuts the other way. Moscow can use changes in nomenclature to make two quite similar systems appear to be very different. These skills are not lost on today's Kremlin.

Export

This is where export considerations begin to come into play. The ruse works only while no one else knows the finer points of the system. As long as the latest missiles remain sealed in their launch canisters and the electronic emissions of their engagement radars remain more or less out of the reach of American hands, the unknown remains unknown.

Widespread proliferation of S-400 batteries would make them increasingly accessible to study -- clandestine or otherwise -- by the U.S. military. (The Department of Defense acquired several components of various older versions of the S-300 from former Soviet Union states in the 1990s.) Such study would allow a concrete picture of the system's capabilities to emerge. A concrete picture defines the parameters of a problem, and a problem with parameters allows for the creation of concrete solutions.

Resale Value

The second reason Moscow is unlikely to let the S-400 slip out the door any time soon is that the Russian military-industrial complex has become particularly adept at refurbishing and upgrading old equipment and turning it around at a profit. Indeed, it is still selling variants of air defense systems with roots in the late 1950s. The Kremlin can then use this

money to finance production and upgrades of the latest systems for itself. Meanwhile, it locks in a returning customer, who keeps coming back for upgrades and replacements for hardware that is much closer to slipping into obsolescence. This kind of thinking has an economic logic to it.

Foreign Policy

More than anything else, the export of strategic weapon systems is a tool of foreign policy. Such sales can help facilitate military cooperation or simply aid the enemy of one's enemy. Moscow certainly was not playing nice when it delivered shorter-range Tor-M1 surface-to-air missile systems to Iran. But Russia thus far appears to have refrained from selling more serious systems -- such as late-model S-300 systems -- to either Iran or Syria, despite sincere efforts on the part of both Tehran and Damascus. That is a line Moscow has decided not to cross with Washington.

Moscow has not widely sold the latest models of the S-300 system, and the Russians are hardly likely to begin exporting the S-400 before they expand production of its predecessor systems. Circumstances can change, however, especially as the United States continues to push toward a pair of ballistic missile defense bases in Europe, and Moscow is taking this potential shift into consideration.

Russia Holds its Ground

Ultimately, the S-400 builds on its predecessor. It is almost certainly an incremental improvement over the S-300PMU2. Those improvements, however, largely appear to be evolutionary rather than revolutionary. However, even if the S-400 is little more than the S-300PMU2 with a new paint job, it is still one of the best strategic air defense assets money can buy. And Russia gains little from the system's capabilities being distributed internationally and pinpointed any further.

Although the deployment of the S-400 around Moscow hardly equates to Russia's readiness to put the system on the export market, the fielding of this "next generation" will lead almost inexorably to the increased export of later-model S-300s. That alone will facilitate a qualitative leap in air defense for a number of buyers.

Though the only true test for such systems is a shooting war, Russian air defense technology appears to be, at the very least, holding its ground in the face of generational advances by the U.S. Air Force -- and that technology will become increasingly available for the right price.
