

Russia Works to Restore Positions In Drone Development - Part I

Defense-aerospace

Unmanned aviation is a dynamically developing industry of modern aircraft construction. Technical and technological achievements boosted the design of new systems. At present drones are engaged by many armies of the world and used in armed conflicts. Our country used to have considerable achievements in the sphere and now works to restore its positions, expert Denis Fedutinov writes in the official blog of the United Aircraft Corporation.

MOSCOW - The former Soviet Union enjoyed a major experience in drone development also in the tactical class. Until recently the Russian army had old Strizh and Reis systems developed by the Tupolev Design Bureau yet in the 1970s and the Stroi-P complex with remote controlled Pchela craft designed by Kulon Research Institute and the Yakovlev bureau in late 1980s. Unfortunately, the economic plight of the transition period in the 1990s stalled the work. The initial pace was lost as a result, the designs got obsolete, the existing technical and scientific experience in the sphere was lost and the country began to considerably lag behind leading foreign producers.

The interest in drones revived in Russia in mid-2000s mostly due to the effort of private companies which initiated some steps to create mostly small-class craft. The Russian defense ministry kept displaying little interest in drones for some years. The guideline was however supported by law enforcement agencies - the interior ministry, the Federal Security Service (including the Border Service) and the emergencies ministry.

In early and mid-2000s the orders of the defense ministry for the design of domestic drones were very modest. The latest system in the arsenal of the Russian military was tactical Stroi-P with remote controlled Pchela craft designed at the end of the Soviet epoch. In the 1990s the system became morally outdated. In early 2000s the Kulon Institute of the Vega Concern upgraded the complex to Stroi-PD version. The Rybinsk-based Luch Design Bureau of the Vega designed another tactical Tipchak craft. As in the case of Stroi-PD the funds were appropriated mostly for R&D. The Vega Concern and the defense ministry signed a contract for the delivery of one such complex a year which was an absolutely symbolic action.

Problems caused by the absence of modern reconnaissance and surveillance drones were exposed by the 2008 situation in Abkhazia and South Ossetia. The defense ministry tried to engage available drones but none of them was capable of fulfilling the mission. The Russian troops were actually blinded. In contrast the Georgian military efficiently engaged the drones bought from the Israeli Elbit Systems Company.

As for Stroi-PD, it took off with the use of powder boosters which exposed the launch site. The flight itself could not be stealthy because of the noisy two-stroke engine.

The Russian military also complained about the noisy Tipchak tactical drone designed by Vega. It was created in the Luch Design Bureau in Rybinsk. Former Russian Deputy Defense Minister Vladimir Popovkin said the drone was engaged in the operation in South Ossetia and performed poorly. Besides noise problems, the quality of reconnaissance data was low because of the line TV camera which failed to produce images corresponding to modern requirements. Besides, there were also problems with friend-or-foe system.

The developments around the conflict with Georgia became the threshold which made the Russian defense ministry urgently take measures to rectify the stagnant situation with modern drones for the national armed forces. Initially foreign designs were purchased, as well as available systems of domestic companies. R&D to create perspective craft was launched. The first step was the purchase of drones from Israel which is the world leader in the sphere and then an additional batch of drones was assembled in Russia.

Plans to buy Israeli drones were first voiced in November 2008 by General Chief-of-Staff Nikolai Makarov. As a result, the defense ministry acquired short-range Bird-Eye 400 and medium-range Searcher Mk II of the Israeli Aerospace Industries (IAI). According to the contract signed in 2011, the drones were assembled in Russia by the UZGA Works in Yekaterinburg under Zastava and Forpost brands correspondingly.

Major modernization and localization of tactical Forpost production is being considered. The drone is to get some domestically-produced systems, including a secured communications line and state system of identification, as well as GLONASS-based navigational system, radio-technical reconnaissance and data transmission devices, digital aerial survey system and lateral visibility radar.

Russia Is Trying to Regain Its Positions In the Field of UAVs - Part II

MOSCOW --- In parallel with the purchase of foreign UAVs, the comparative tests of domestic drones available in the Russian market were organized the Russian military establishment. Mostly, these were small-size drones developed by Russian companies on their own initiative. The tests helped identify the leaders which received a list of requirements to finalize their systems. Once that was done, the Russian military began to actively buy domestic UAVs and intensively operate them.

Particularly, the Granat-series vehicles were purchased from Izhmash - Unmanned Systems. The same company manufactured the Grusha unmanned systems. The number of Eleron-3SV short-range systems purchased was steadily growing and exceeded 200 units back

in 2011. However, the Orlan-10 systems developed by St. Petersburg-based Special Technology Center (STC) make up the lion's share of the small UAV systems purchased and used by the Russian military. To date, more than a thousand such UAVs were to be delivered by the company to the Russian Ministry of Defense.

It is known that a number of efforts are being undertaken by Russian enterprises to develop advanced unmanned aerial systems (UAS) for the Russian Ministry of Defense. Most of them were launched after 2011 and have not yet been completed, being at various stages of implementation.

Among the Russian projects in the field of tactical unmanned systems is the Korsar UAS system, which is under development at Rybinsk-based Luch Design Bureau (part of the Vega Concern). The UAV was undergoing flight tests in 2015-2016.

In addition, two medium-altitude long-endurance (MALE) UAV systems are being developed in Russia. One of them is the Orion UAV system being developed by the Kronstadt Company (formerly known as Transas) under the Inokhodets R&D project. A system with a heavier Altair UAV is under development within the framework of the Altius R&D project at the Kazan-based Simonov Experimental Design Bureau (formerly known as Sokol Experimental Design Bureau). Both the development contracts were signed in October 2011. Both systems are currently in the flight test phase.

Sukhoi is working on a heavy reconnaissance and strike UAV under the Okhotnik R&D project. The UAV is expected to make its maiden flight in 2018. In addition, TsAGI and Myasishchev EMZ are taking part in the development of a Russian high-altitude drone in the framework of the Obzor-1 R&D project. The construction of the first prototype of the UAV was scheduled to start in 2016.

Russia's lagging behind the world's leading powers in the field of UAVs can be overcome due to high demand for drones in both defense and law enforcement and civil agencies, as well as the attention that has been paid by customers to this subject matter in recent years. At the same time, in order to effectively operate in the future, it is necessary to carefully analyze the existing experience, including negative aspects, and draw the right lessons.

Unfortunately, modernization of existing systems, which in many cases is a rational step (especially given scarce resources), has proved ineffective in the case of domestic UAVs. For example, the same Stroy-PD system was being developed in a different era to meet completely different requirements. After more than 15 years, no modernization could bring it closer to modern foreign drones. A similar statement can be also applied with a high degree of probability to other UAVs developed back in Soviet times.

As regards military-technical cooperation with Israel, on the one hand, it can be beneficial for Russia, but, on the other hand, it has a number of negative aspects. The level of relations with Israel and its main ally - the U.S. - makes it impossible for us to count on the fact that in the foreseeable future Russia will be able to purchase the most advanced UAVs in this country. In addition, even if we hypothetically assume that a favorable solution is possible, these

systems must be tailored to Russian conditions. Judging by the experience of European countries, this will require at least several years. Finally, if we rely entirely on Israeli UAVs, there is a risk of getting hooked on them and thereby destroying the weak Russian UAV industry. For a country with the strongest aircraft building school, this would be entirely wrong.

Indigenous development of unmanned systems looks harder, but in the long term this path offers many advantages, among which is greater compliance with Russian conditions, independence of political risks and export potential. At the same time, it's worth noting that developing Russian UAVs is a long process. This is due to the devaluation of the groundwork laid in this given field in the Soviet years, the loss of relevant competencies, and most importantly - misguided organizational decisions, in particular, the wrong stake on the Vega Concern as prime developer.

When the former senior management of the Russian Ministry of Defense decided to appoint Vega as prime developer of UAV systems, it was probably impressed by the record of the companies affiliated to the concern. However, the enterprises that were once the pride of the Soviet radio industry and the enterprises that are now part of Vega are completely different things. And today, following the results of several years of work on UAVs, the concern's reputation with the military customer is as bad as possible. Suffice it to recall that former Deputy Defense Minister Vladimir Popovkin often reminded Vega of the multibillion amounts spent without effect.

However, it seems that two and three times larger amounts would hardly rectify the situation in the case of Vega. There are several reasons for this. This is inefficient management, a difficult financial and economic situation, and some euphoria caused by monopoly status. At the same time, one cannot help but notice that as the dimensions of the unmanned vehicles increase, the share of tasks associated with aircraft building issues rather than radio technology issues is growing. And while the experience showed the concern's failure in the development of systems with sufficiently light tactical UAVs, the failure to develop heavier systems with Vega's leading role seems predetermined, expert Denis Fedutinov wrote in the official blog of the United Aircraft Corporation (UAC).