

Ramping Up Russian Avionics

Russia is planning to invest \$1.5 billion in the development of domestic avionics.

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Eugene Gerden



The Russian government plans to invest up to 90 billion rubles (\$1.5 billion) in the development of its domestic avionics industry in the next several years.

Russian Prime Minister Dmitry Medvedev has confirmed that the avionics development initiative will be part of an overarching national program for the development of the Russian aviation industry through 2025.

Enhancing domestic avionics design and manufacturing capabilities is to involve the establishment of new design avionics bureaus throughout the country and the expansion of domestic product ranges. During Soviet times, there were more than 50 design bureaus that specialized in the development of avionics. Since 1991's dissolution of the Union of Soviet Socialist Republics, that number has significantly declined due to bankruptcies triggered by the lack of state funding.

The industry began recovering at the beginning of the 2000s, as a result of the end of a number of economic and political crises in Russia and a significant increase of national defense spending, a large portion of which was allocated for avionics development and procurement.

Russia's minister of Industry and Trade, Denis Manturov, has said further development of the nation's avionics industry is considered a state priority. That status is driven, in part, by the lack of cooperation between Russia and the U.S. in this field as a result of American sanctions following Moscow's 2014 annexation of Crimea from Ukraine.

Prior to the American (and international) sanctions, the Russian aircraft manufacturing industry actively imported foreign avionics, mostly from the U.S. Many Russian design bureaus also had contracts with some of the world's leading avionics designers and producers, such as Honeywell Aerospace. But the sanctions restricted arms and technology transfers and blocked transactions with some Russian banks and businesses. These steps led to the termination of the majority of contracts and threatened the supply of quality avionics for the Russian aircraft manufacturing industry. Today, Russia is experiencing a shortage of modern avionics technologies.



Aerospace Equipment Corp. is one of Russia's leading avionics manufacturers.

The new development plan calls for allocating funds to increase production capacity at some of the country's leading avionics manufacturers. One of them is expected to be Radioelectronic Technologies, Russia's leading enterprise in the field of avionics and part of the Russian state corporation Rostec.

According to the company's first deputy general director, Igor Nosenkov, the funds will be used mainly for the design of new products for Russian aircraft. He said Radioelectronic Technologies currently holds 75% of the Russian market for civil avionics and 45% for military systems. In addition to its role in the domestic market, he said, the company supplies products to the Asia-Pacific region.

According to Russia's Defense Ministry, the initial stage of the development initiative will focus on the design of a new generation of airborne systems built on open-architecture platforms. Design of these systems is expected to be completed by the end of this year, after which they would become a subject of certification, in accordance with EASA standards. Serial production would begin in 2018.

It is planned that the new systems would be used in the building of some Russian aircraft, in particular the Irkut MC-21, the new family of medium-range, single-aisle transports developed by the Yakovlev Design Bureau and produced by Irkut. Production is to begin in 2020. New-design avionics also would be supplied for Sukhoi's new fly-by-wire Superjet NG medium-range, single-aisle transport and would be used in the production of some versions of Russian helicopters.

The design and production of the new systems and other Russian avionics would take place at a new Radioelectronic Technologies' plant in the city of Kazan in southwest Russia, where a research and manufacturing cluster for avionics is to be established.

That would not be the only cluster for the production of avionics. In addition to Kazan, up to five scientific and production clusters are to be established in different regions of the country.

According to Russia's plans, the share of domestic avionics in Russian aircraft (both civil and military) should reach 50% in value terms by 2018. Implementation of these plans would bring about 18 billion rubles (\$300 million) of additional revenue to the domestic avionics industry next year, according to government officials.



The Central Aerohydrodynamic Institute, the oldest aircraft design and avionics bureau in Russia.

“We believe that national aircraft will be mostly built with the use of domestic avionics, units and systems by 2020 or 2025,” said Andrew Boginsky, director of the Department of Aviation of the Russian Ministry of Industry and Trade. “By this time, the quality of domestic avionics should be on par with the quality of their Western analogs, which will allow for the reduction of further imports of avionics even after the lifting of sanctions.”

Boginsky also added that particular attention would be paid to the design of new enhanced and synthetic vision systems, navigation aids and smart devices.

The design of certain products has already been completed. One of them is Irbis, a new Russian radar control system, which was developed by the Tikhomirov Scientific Research Institute of Instrument-Making and is positioned, its designers say, as among the world’s most powerful radar control systems.

According to its designers, the new system allows a fighter to detect an air target at a distance of up to 400 kilometers (215 nautical miles) and provides the ability simultaneously track up to 30 targets and fire at up to eight of them. The new system also supports the quick detection and tracking of up to four ground targets. Designers said tracking a ground object does not create any problems for a fighter controlling airspace.

The new radar control system is also capable of determining the nationality of detected air and marine targets and to recognize the class and type of targets in the air as well as on the surface. The system can be used in all weather conditions, designers said.



Russian Defense Minister Sergey Shoigu.

In addition to Radioelectronic Technologies, part of the development initiative's funds will be also provided to Aerospace Equipment Corp., another Russian leading enterprise in the field of avionics, as well as the Electropribor company. In the latter case, according to Electropribor CEO Andrew Sedyh, the investments would allow the company to increase production of advanced inertial navigation systems and laser gyroscopes, as well as to start the design of their future generations.

Finally, particular attention will be paid to the development of new electronic warfare systems. That would be part of the existing Russian state military contracts, which this year reached a record sum of 3.3 trillion rubles (\$60 billion).

According to Radioelectronic Technologies General Director Nikolai Kolesov, over the past two years the company has designed eight innovative electronic warfare systems for combat aircraft, ground forces and the domestic navy, and plans to continue developments in this field. In addition, it plans to complete the development of a new generation of radars.

Still, some Russian analysts believe that the planned level of funding will be insufficient for the implementation of the majority of goals of the national avionics industry.

"This is not a huge sum for the Russian avionics industry," said Sergei Bodrunov, board member of Aerospace Equipment. "According to our calculations, the volume of investments required for the development of the industry by 2025 should range from 150 to 250 billion rubles. Otherwise, we may lag far behind Western countries. There is a need to increase the volume of state investments in the industry, as private investors are not able to implement such projects, in terms of their funding, and do not have the needed experience for their execution."

In the meantime, the Russian government has responded to complaints from producers. According to Finance Minister Anton Silyanov, the Russian government is designing financial mechanisms to ease conditions for Russian avionics producers to get loans from domestic banks and is considering ways to attract private investors to the industry.

According to state plans, successful implementation of the program would allow Russian avionics makers to significantly increase their share of in the global market. The Industry and Trade Ministry said that by 2025 the share of Russian civil avionics in the global market should reach 10.9%, while military avionics should increased to 21%. AVS