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Editorial/advertising

Editor

Vladimir Orlov
orlov@rvs-holding.ru

English editor

Alan Norris

Maker-up

Irina Danenova

Advertising manager

Marina Bulat
bulat@rvs-holding.ru

Translator

Moscow Translation Agency MTA,
Inna Frolova

Photographer

Dmitri Kazachkov

Photos by

Dmitri Kazachkov, Dmitri Lifanov, Alan Norris, Sergei Alexandrov, Joy Rahman, J.S. Home, by companies Eurocopter, UTair Aviation, Russian Helicopters, Vertical-T, Ulan-Ude Aviation Plant, Aviamarket

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Russian Helicopter Systems
Moscow Region, Krasnogorsk, 65-66 km Moscow Ring Road, IEC "Crocus Expo". Pavilion № 3, office 332, 143402

Tel. + 7 (495) 926-60-66

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Marina Bulat

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Six years of success

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The annual specialised International Helicopter Industry Exhibition HeliRussia has been held in Russia for six years now. The idea to hold it in Moscow was proposed by the Helicopter Industry Association in 2008. The year 2014 will see some sort of a milestone in the history of the exhibition – the 7th HeliRussia, which is going to be not just an exhibition, but the main image-building event of the year for the key companies of the helicopter industry in Russia.



The buyer can to take success for granted

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There are good reasons for making such a statement since Russia's helicopter industry is growing more rapidly than that of its competitors, and its growth is more stable as well. This can be further confirmed by what was said by Yury Slyusar, Russia's Deputy Minister of Industry and Trade, at the European Rotorcraft Forum 2013: "The annual output of Russian helicopters should increase from 290 units in 2012 to 450 units in 2020."

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Russian commercial companies are leaders in supplying air services for the UN's humanitarian and peacekeeping missions. They secure no less than half of all commercial contracts with this international organization for aerial transportation.

This situation is due in large part to the unpretentious and reliable nature of Russian aviation technology, which has for more than 30 years been successfully operated under field conditions in 11 countries in Asia, Africa and Europe.



Full circle

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In September they returned from their round-the-world journey, which lasted 43 days and 220 flight hours. In Robinson R66 helicopters they went almost 40 thousand km (the exact figure: 39,448 km), they passed through all the climate zones, they flew over Greenland, North America, Kamchatka, Chukotka, they crossed the Atlantic and returned home conquerors. Conquerors of time, space and stereotypes.

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Main image-building event for companies of the helicopter industry in Russia

Exhibition which was once regarded as an adventurist endeavour becomes an integral part of the world helicopter industry





Russian helicopter industry received impressive investments from the state, and literally after two-three years it became the most rapidly growing industry

marked by the signing of an agreement on the joint development by Russian and Canadian firms of an engine for the next generation medium-class helicopter Mi-38.

At the exhibition, the Italian company of AgustaWestland signed an agreement on launching full-scale cooperation with Russian Helicopters JSC. The first phase envisaged supplying Russia with about half a billion euros' worth of AgustaWestland helicopters by 2012. The next phases provide for setting up joint ventures for servicing Agusta helicopters in the territory of Russia, and the project's final phase will see joint production of helicopters in Russia.

Exhibition participants concluded a large number of contracts and reached a lot of agreements.

HeliRussia 2008 had also an extensive business programme.

Its key event was the personnel forum, as part of which there was a conference called "The System of Training Personnel for the Helicopter Industry" as well as a jobs fair where the companies offered their vacancies. During the three days of the exhibition, it had about 10 thousand visitors.

That was only a beginning.

2009

The 2nd International Helicopter Industry Exhibition HeliRussia had even more participants – 144 companies from 16 countries of the world. Foreign firms' interest in our forum became obvious as their number had increased and the geography had expanded. For the first time, there were companies from Latvia, Switzerland, Colombia, Japan, New

Six years of success

The annual specialised International Helicopter Industry Exhibition HeliRussia has been held in Russia for six years now. The idea to hold it in Moscow was proposed by the Helicopter Industry Association in 2008. The year 2014 will see some sort of a milestone in the history of the exhibition – the 7th HeliRussia, which is going to be not just an exhibition, but the main image-building event of the year for the key companies of the helicopter industry in Russia. Over these years, the exhibition has gained weight in the helicopter world and has acquired a particular gloss of sophistication which meets the needs of wealthy Russians, and this is how it is different from similar helicopter exhibitions in other countries.

It should be noted that at first this initiative was regarded by some experts as an adventurer endeavour – how can you start such an ambitious project when the Russian helicopter industry is at its lowest in its entire history? Moreover, exactly a year later, the whole world economy was under such a threat that you could forget about the Russian exhibition. But the organisers were confident that HeliRussia would not only be a success, but would also give impetus to the development of the domestic market of heli-

copter technology, which would, in turn, reinvigorate a whole stratum of high technology. And they turned out to be right. Before and in the midst of the crisis, the Russian helicopter industry received impressive investments from the state, and literally after two-three years it became the most rapidly growing and lucrative industry. The Russian exhibition has been successful as well. Today, according to experts, HeliRussia is a confident leader in the Euro-Asian market of the helicopter industry.

2008

Contrary to the famous saying that you must spoil before you spin well, the exhibition kicked off very well. Even back then, in May 2008, the exhibition, which not so many people knew about, was held with the participation of 129 companies, with 22 of them being from other countries: Great Britain, Italy, Germany, France, the United States, Switzerland, the Czech Republic, Ukraine and Belarus. The pavilion showcased 20 helicopters produced at the Mil Moscow Helicopter Plant, Kamov, Kazan Helicopters, Eurocopter, AgustaWestland, Bell Helicopter, Robinson, and MD.

The work yielded good results before long. The opening of HeliRussia 2008 itself was



Zealand and the United Arab Emirates. More than 100 Russian companies (including those that were part of Russian Helicopters JSC as well as independent manufacturers and operators from the regions) presented a considerable volume of display material. Samples of military goods were also exhibited, which allowed the organisers of the exhibition to reflect as fully as possible the whole range of the domestic achievements in

this sphere. The most graphic representative of military goods was the Ka-52 Alligator combat helicopter, which was exhibited here for everyone to see. Unquestionably, the helicopter-building holding Russian Helicopters JSC formed the basis of the Russian section of the exhibition. Russian Helicopters JSC's display stand was showcasing Russian helicopters in the non-stop mode, and these presentations attracted a large audience.

Fundamentally new designs of Russian helicopter manufacturers were also presented at the exhibition. For example, the Maslov – Sever Design Bureau LLC showcased its new product – the helicopter RU MAS 133. New agricultural equipment HeliPod III Spray System to be used on board of the helicopter R44 for irrigation and pollination of agricultural land was presented at the exhibition. It was showcased by Russian Helicopter Systems.





One of the key events of the exhibition's business programme became the International Conference “Helicopter Market: Reality and Prospects”

more representative than the previous ones. This time, 156 companies, with 40 of them being from abroad, participated in the work of the exhibition.

At HeliRussia 2010, Eurocopter's EC175 and AgustaWestland's AW139 were for the first time presented to the Russian public. The novelties among the life-size exhibits of HeliRussia were the helicopters HummingBird 260L (Vertical Aviation Technologies), A600 Talon (Rotor Way) and AK1-3 (Aerocopter Design Bureau).

The most graphic representative of military goods was the Russian combat helicopter Mi – 28NE Night Hunter, which was also on display at the exhibition.

For the first time, the Gyros 1, Gyros 2, Inspector and MAI-208 gyrocopters were

Over 30 foreign companies engaged in the helicopter industry took part in HeliRussia 2009, including such leaders of the world helicopter market as Eurocopter, Bell Helicopter, MD Helicopters, Turbomeca, Becker Avionics, Pall Corporation, Breeze-Eastern, Honeywell Aerospace, Kamatics, Simplex Manufacturing, Semia and others.

One of the key events of the exhibition's extensive business programme was the Inter-

national Conference “Helicopter Market: Reality and Prospects” organised by the Helicopter Industry Association in cooperation with the AviaPort agency. The conference looked into the parameters of the Russian helicopter market from the point of view of consumers and helicopter manufacturers.

2010

The third edition of the exhibition was even





demonstrated at the exhibition. The backbone of the Russian display at the exhibition was the integrated stand of UIC Oboronprom JSC – comprising the Russian Helicopters JSC helicopter-building holding and the United Engine Building Corporation – which presented 18 Russian companies. At HeliRussia 2010, for the first time there was a French integrated display stand, presenting 13 companies. The exhibitors from

France totally numbered 16 companies and outnumbered other foreign countries. This is how the Year of France in Russia was marked at the exhibition.

2011

The work of HeliRussia 2011 was interesting and full of events as well. Russian Helicopters JSC and WEB Leasing concluded an agreement on strategic part-

nership in the aviation market of Latin America. The Russian Helicopters holding signed a framework agreement with the French company Turbomeca for the delivery of a large batch of engines for Ka-62 helicopters. The American company Sikorsky Aircraft asserted itself in the Russian market after a very long interval and announced the beginning of official sales of its helicopters in Russia.





The 5th "anniversary" International Helicopter Industry Exhibition brought together more than 200 companies from 18 countries of the world

2012

The 5th "anniversary" International Helicopter Industry Exhibition brought together more than 200 companies from 18 countries of the world. American companies showed a particular interest in the Russian exhibition – 15 companies from the USA were represented at the Moscow exhibition this year. The participation by Canada and Germany should be also noted – they were represented by 3 companies each.

The displays of domestic manufacturers were encouraging as well. The Russian Helicopters holding presented, for the first time, its medium multi-purpose passenger transport Ka-62 helicopter developed by Kamov JSC and created with the use of the latest technology and modern materials. The

At HeliRussia 2011, the Swiss company Marenco Swisshelicopter held its first presentation in the Russian and European markets of its new helicopter SKY SH09, which has an all-composite structure. The first Russian helicopter Robinson R66, presented by the company Uralhelicom, was also showcased at the exhibition.

Among Russia's new products at the exhibition was the coaxial two-seat helicopter

Berkut.

Interesting designs were also presented by gyrocopter manufacturers. They included the two-seater Cavalon, the elegant MTO-sport, as well as the light one-seater Barsik developed by Voronezh State Technical University. The 4th International Helicopter Industry Exhibition HeliRussia was attended by a total of 161 companies from 17 countries of the world. And the progress is obvious again.



Ulyanovsk Instrument Design Bureau – which is part of the aviation instrument engineering concern Aviapriborostroenie – showcased the KBO-17 avionics complex for the Mi-171A2, an upgraded version of the Mi-8/17 family. As part of the complex, the helicopters of this family had been designed according to the “glass cockpit” principle for the first time.

Russia's new record was set by gyrocopters – there were 10 of them at the exhibition this year, including 2 new models: the MTO Agric designed for carrying out aerochemical work, as well as the new MTO Broom, which, according to the manufacturers, is going to be really popular with ordinary customers due to its unprecedented low price.

Those wishing to assess the début of the new helicopter models were 2 thousand more than the previous year – about 9 thousand.

2013

And, finally, the 6th International Helicopter Industry Exhibition HeliRussia was not only the most representative in terms of the number of its participants and visitors, but it also considerably expanded its borders. The area occupied by the HeliRussia 2013 exhibition



increased by nearly 1,000 sq. m. and reached 12,706 sq. m., where 205 companies (165 Russian and 40 foreign) presented their products.

For the first time ever in Russia, the exhibition included a revolutionary machine - the world's first composite rotorcraft KC-518 showcased by Composite Helicopters, New Zealand. Visitors also had an opportunity to see the latest multi-purpose helicopter

AW139, for the first time assembled in Russia at the HeliVert joint venture of Russian Helicopters JSC and AgustaWestland. One of the key themes of the exhibition was the development of the ambulance and rescue aviation in Russia. Russian Helicopters JSC and Eurocopter presented their vision of modern machines designed for ambulance and rescue operations by showcasing the light multi-purpose helicopter Ka-226T of

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medical specifications and the specially equipped EC-145 respectively.

For the first time, the representatives of the newly formed company Russo-Balt demonstrated their V6 and V12 engines. A distinguishing feature of these engines is their versatility.

For the first time at the exhibition, Aviaproject presented not only a life-size model of its latest light four-seat helicopter of coaxial con-

figuration AP-55, but also its main reduction gearbox.

The participants showed a keen interest in the signing of an agreement in the field of airworthiness and its implementation procedures between Russia's Aviation Register of the Interstate Aviation Committee (AR IAC) and the Directorate of Civil Aviation of Peru. The document facilitates the issuance of export certificates of airworthiness and makes

the procedure for registering new Russian-made helicopters in the aviation register of the Republic seamless and, in fact, gives Russian helicopters access to the Peru sky. Transas Aviation CJSC of Transas Group and Jet Transfer, an official representative of the American manufacturer of helicopters Bell Helicopter, signed a cooperation agreement on the installation of GLONASS/GPS on helicopters Bell-407 and Bell-429. Equipping Bell helicopters with the GLONASS/GPS TSS (Transas Satellite System) receiver-indicator produced by Transas will be carried out in accordance with the Decree of the Government of the Russian Federation on installing GLONASS on all foreign-made aircraft operating in the Russian Federation by January 2017.

The key event of the exhibition was the opening of Russia's first heliport on the roof of the Crocus Expo International Exhibition Centre. The joint project of Russian Helicopter Systems and Russian Helicopters has a proper lounge, screening and registration areas. A business centre with the Internet access, a bar and a comfortable recreation area is available to customers and visitors.

Dmitry Gnatenko



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contact@neboservice.ru



The key element of the helicopter sector of the UN's air fleet

The truth about Russian UN helicopters



Russian commercial companies are leaders in supplying air services for the UN's humanitarian and peacekeeping missions. They secure no less than half of all commercial contracts with this international organization for aerial transportation.



Regardless of affiliation

This situation is due in large part to the unpretentious and reliable nature of Russian aviation technology, which has for more than 30 years been successfully operated under field conditions in 11 countries in Asia, Africa and Europe.

The key element of the helicopter sector of the UN's air fleet is rightly considered to be the Mi-8/17. Along with Russians, a number of countries use them extensively on UN missions - the Ukraine, India, and others. Many peacekeeping and humanitarian operations have switched to Mi-17 helicopters, which are leased from eastern European firms complete with maintenance crews and English-speaking pilots.

Moreover, regardless of affiliation to a particular operator the Russian technology certainly deserves the endorsements of UN representatives.

"The Mi-8 helicopters in which pilots of the 18th Separate Helicopter Detachment (Ukraine) carried out their missions, are some of the best in the UN Mission in DR Congo. They are quite well-known aircraft, unpretentious in terms of maintenance and storage, with excellent military and transport capabilities", noted Maqsood Ahmed, Lieutenant General, the Military Advisor to the UN Secretary-General in November of 2013.

Technology, quality throughout

The Mi-8/17 is exceptionally successful in terms of construction, ergonomics, ease and comfort in operation. So a standard model can be considered of one and the same machine for use without any additional preparation in various climatic conditions. There are well-known cases of the operational relocation of Mi-8/17's on transport planes from the subarctic tundra of Kamchatka to the tropics of Angola, where they began operating immediately after attaching the blades, without even an oil change.

Storage outside of hangars and the high reliability of the Mi-8/17 enable them to ensure the UN mission in Cambodia in periods of tropical rains and dust storms.

One unique quality of the Mi-8 recognized throughout the world is its extremely high degree of serviceability. Any out-of-service part, even a gear, can be replaced on-site in the field.

An average light hours on the machine at this point amounted to 70-100 hours per month.

The highest reliability of Russian technology is demonstrated when exposed to the effects of firepower, of fire from the ground. This is what occurred in a number of cases when helicopters of the Mi-8/17 family were providing UN humanitarian missions on the African continent. This also took place during

the airfield base. A corroboration of this comes from a photo shoot with militants in the background of which is that same Mi-8 helicopter; two days later, they captured this airfield.

One unique quality of the Mi-8 recognized throughout the world is its extremely high degree of serviceability. Any out-of-service part, even a gear, can be replaced on-site in the field. None of the foreign machines is comparable to it in this regard.

Breaking expensive trends

One of the reasons listed for the popularity of the family of Mi-8 class helicopters on the world market is their price. At a cost of less than \$10 million per machine depending on the complete package, the Russian helicopters are two-three-four times cheaper than their western counterparts (Sikorsky S-70, Blackhawk and S-92, Eurocopter EC225 Super Puma and EC 725 Cougar, UH60), the majority of which are modifications of the Mi-8, which also exceeds in lift capacity. So, if a client requires mobility at lower costs, the best helicopter for this would be the Mi-8/17.



shelling directed at Mi-8's from a MANPADS (Man-Portable Air Defense System) during military action in Syria in November, 2012. After a direct hit on a helicopter by rockets there was no disaster, and it landed safely at

The Mi-8/17 conceptually break the current trends toward swift price increases for helicopter technology. This is particularly revealing in the case of the "helicopter crisis", which was exacerbated in connection with

the wars in Iraq and Afghanistan. As a result, instead of high-priced western helicopters the air forces of these countries arranged to get Mi-17's, purchased wholesale by the Pentagon from Russian manufacturers. The US purchased around 100 Russian Mi-17's wholesale, modernized them and supplied them to Iraq and Afghanistan. They installed western electronics in the Russian helicopters, and they frequently modernized them in order to make them more reliable and durable.

On the minus side there is only the human factor.

Specialists from the Russian aviation company UTair, the main supplier of services to the UN, based on the wealth of experiences using helicopters from Russian and western manufacturers, have formalized the advantages and the shortcomings of Russian technology. To the first category they listed: high maintainability; availability of service in remote areas; the possibility to operate them in the field in a wide temperature range, with extensive experience in their operation mak-

ing it possible to save time in detecting malfunctions. Among the shortcomings, the major ones acknowledged are: high operating expenses for some kinds of helicopters due to their obsolescence, which also leads to shortages of spare parts produced by the manufacturers of the helicopters (the best-known example in this category is the Mi-8T); a limited ability to satisfy international certification requirements.

At the same time both of the stated points have in fact had no influence on the image or the distribution of the modifications of the Mi-8/17 throughout the world, nor on the awarding of contracts to ensure them for the UN's humanitarian missions. The fact is the high operational expenses for modifications to the obsolete Mi-8/17's is related in the first place to the desire of a number of operating companies to "squeeze out" from the helicopters all conceivable and inconceivable resources, at times to the detriment of economics and safety. This is in no way connected to the UN or any other international organizations. Furthermore, before dispatching helicopters

abroad under contracts to the UN, a set of duties must be performed, including major repairs in maintenance plants, to be completed under the requirements of the contracts and requiring serious capital investments. At the same time a fully complete set of resource kits is installed, improvements to performance connected with the operation of the helicopter abroad, officially registering it for international flights. The entire helicopter fleet working for the UN are equipped in accordance with the requirements of the contracts.

It is anticipated that, assuming there is constant improvement of the machines in the Mi-8/17 series, they will be for sale until 2035. Work is underway on the creation of a radically renovated version of this machine - the Mi-171A2.

With respect to the international certification of Russian aviation technology, an example can be shown in this regard of the issuing in 2011 of a certificate in recognition of assessment procedures for the airworthiness of the Mi-17V-5 military transport helicopters for the army of Afghanistan. Actually this means certification of the helicopter in the US. And in essence it demonstrates the extraordinarily tough competition in the world helicopter market, using all possible resources, including administrative. All of this clearly restricts the "possibilities of satisfying the international certification requirements of Russian helicopters" of the Mi-8/17 family.

Nothing personal, just business?

Attempts to sideline competitors, that is, by various means to remove from the commercial market the most efficient helicopters (Mi-8/17), and at the same time Russian companies, then one follows the other. Thus in 2011 the UN temporarily froze contracts with two Russian aviation companies, several colleagues of whom were charged with mass rape of residents of the Sudan and the Democratic Republic of Congo. It's not hard to guess that the individuals accused in the scandal turned out to be from UTair and "Nefteyugansk United Airline", which were providing the bulk of air transportation for UN





programs. Incidentally, in the absence of any specific details of the crime which the Russian aviators were accused of, the "news" instantly spread through the news media.

In June, 2013 the journal "Foreign Policy" accused Russia of possible intrigues in order to win the major contracts for air transport within UN programs. "Unfair advantages", strange though it may seem, this was how they explained the cheap Russian aviation technology, including the Mi-8/17 helicopters. "These economical aircraft, until now created in Russian factories, have taken UN contracts away from western companies competing in the hunt, which are given to whomever makes the lowest bid. Now Russian companies have 75% of all contracts for commercial helicopters, and this is the most profitable segment of the UN's multibillion dollar peacekeeping market", the journal declared with indignation. In conclusion an initiative was proposed to decentralize the process of renting helicopters.

A reaction to the article came from Kieran Dwyer, spokesperson for the UN Department of Peacekeeping Operations: "Helicopters of the Mi-8/17 type are playing a leading role in peacekeeping operations, being their most important transport asset. These machines possess the very characteristics which make them most suitable for the peacekeepers and

It is anticipated that, assuming there is constant improvement of the machines in the Mi-8/Mi-17 series, they will be for sale until 2035. Work is underway on the creation of a radically renovated version of this machine - the Mi-171A2.

their requirements. Here it concerns the distance of the flight, the working freight-carrying capacity, as well as their efficiency", he said.

In his turn the Russian UN Ambassador Vitaly Churkin stated in an interview in the same journal that Russia is concerned that an initiative for decentralizing the process of renting helicopters would weaken fair competition.

An objective process

In this case the key is the phrase "fair competition", which for the duration of the entire work period in the international market of

helicopter services, including the contracts with the UN, is most cherished by companies using Russian aviation technology. The main provider of services to the UN is the Russian UTair Aviation. Also involved in UN peacekeeping missions in various years the Russian aviation enterprises "Vertikal-T", the "Nefteyugansk" Public Corporation, "Vostok", "Abakan-Avia", and "Russkoe nebo" ("Russian sky") participated. Thus Nefteyugansk United Airline is included in the UN register for 1999 and is an official provider of helicopter services. UTair Aviation South Africa (SA), which is a part of the UTair group, is registered in the capacity of an official provider of air services for the United Nations. The registrations preceded the aviation companies' successfully passing a technical audit in compliance with the requirements of the ICAO (International Civil Aviation Organization) and the aviation standards of the UN. For their part the company's primary resource is the Mi-8/Mi-17 aircraft family.

Thus the truth about the high quality and efficiency of Russian helicopters is finding recognition and understanding throughout the world. It is an objective process which is accompanied by the wide distribution of helicopters produced by Russian Helicopters.

German Spirin

Expanding the market for russian helicopters through upgrading the most popular models

In September 2013, Chief Executive Officer of the Russian Helicopters holding Alexander Mikheev said: "Our share in the global market is 14.2%. Our plan is to increase it to 16% in the near future."

Purchasing a Russian helicopter secures prospects



Stability is our advantage

There are good reasons for making such a statement since Russia's helicopter industry is growing more rapidly than that of its competitors, and its growth is more stable as well. This can be further confirmed by what was said by Yury Slyusar, Russia's Deputy Minister of Industry and Trade, at the European Rotorcraft Forum 2013: "The annual output of Russian helicopters should increase from 290 units in 2012 to 450 units in 2020." The helicopter industry shall fulfil this task as part of the implementation of the State Programme: Aviation Industry Development, 2013–2025. The practice reaffirms that what has been planned will be put into action. In 2013, Russian Helicopters built 303 helicopters for its domestic and foreign customers.

Technology plus service and production

One of the main tasks of Russian Helicopters JSC is to expand the market for its products through upgrading the most popular models of the medium- and heavy-lift helicopters. In fulfilling this task, the holding actively interacts with its foreign customers, emphasising the main advantages of the Russian machinery: its reliability, high quality and cost-effectiveness. For example, way back in 2012, Russia offered the Ka-226T to the Indian Air Force within the tender for the supply of 197 helicopters announced by the Ministry of Defence of India. Another model, civilian Mi-171A1, is considered to be the most successful version in the popular Mi-8/17 family. India's helicopter currently numbers about 200 aircraft of this type, and they are still in demand. And in December 2012, Russian Helicopters signed an additional contract to deliver a batch of Mi-17V5 helicopters to the Indian Air Force.

Also in December 2012, during Russian President Vladimir Putin's visit to India, Russian Helicopters and the Elcom Systems Private Limited company signed in New Delhi an agreement on establishing a joint venture for the assembly of Russian Mi and Ka helicopters in India.

At the end of February 2013, the holding showcased its multipurpose Ka-32 and Mi-17



helicopters at the international aviation exhibition Avalon 2013 in Australia, which is a new market for Russian Helicopters. The exhibit hallmark was the medium-lift multipurpose Ka-32A11BC.

Another example of integrated approach to the promotion of helicopters to the world markets was the joint venture maintenance centre launched by Russian Helicopters and Denel Aviation in March 2013 for servicing Russian civilian helicopters in South Africa. It will strengthen the Russian company's positions in the African market. The fleet of Russian-built helicopters (Mi-8/17 and Ka-32) in

the region numbers about 600 units and, undoubtedly, requires a modern maintenance network. The launch of the maintenance centre became a major step in this field.

Retail and gross sales

During 2013, the supplies of Russian helicopters to foreign states continued. Thus, in June–July, Atlas Taxi Aereo, Brazil, received Mi-171A1 helicopter produced at the Ulan-Ude Aviation Plant (U-UAZ). Atlas Taxi Aereo has highly appreciated the unmatched operational performances of Mi-171A1 supplied previously and continues to enlarge its helicopter fleet with Russian-built aircraft.





At the MAKS Aviation & Space Salon 2013 in August, Russian Helicopters concluded a contract to supply five Mi-171A1 helicopters to Colombia. They are planned to be used by the Vertical de Aviacion subsidiary in Mexico to transport cargo and passengers. During MAKS 2013, the company also concluded a contract to supply one Mi-8AMT to the Rescue Service of Almaty, the Republic of Kazakhstan. Under the contract, the helicopter will be delivered to the customer in 2014.

In continuation of the topic of helicopter supply to the external markets, in 2013 the Russian holding transferred to the Ministry of Internal Affairs of the Republic of Kazakhstan one Mi-171E that was built at the holding's production site – Ulan-Ude Aviation Plant. The Ministry of Internal Affairs of Kazakhstan uses helicopters of Mi-8/17 type to carry out patrol and search-and-rescue operations and to transport personnel and cargo.

In October 2013, Belarus, in turn, entered into an agreement with Russian Helicopters on the supply of fire-fighting Ka-32A11BC. The helicopter will be used for extinguishing fire in high buildings in Minsk. The delivery is expected in 2014.

China purchases helicopters

Four Mi-171E helicopters were delivered to China's Poly Technologies company in November 2013 in accordance with the contract concluded by the Chinese company and Rosoboronexport in 2012. Under the contract, Russian Helicopters will supply 52 Mi-171E transport helicopters to the PRC. The customer has so far received 32 of them. It is planned that the final batch of helicopters should be transferred to China in 2014.

Mi-8/17 helicopters are particularly popular in China. Its Mi-171 helicopter fleet numbers about 150 aircraft. In China, they use both the heavy-lift cargo transport Mi-26TC and multipurpose Ka-32A11BC. Chinese crews have successfully completed training at the Ulan-Ude Aviation Plant's training centre. Using advanced training methods and the latest Mi-171 flight simulator, they learned the techniques and rules for piloting the helicopters in various conditions. China is planning to expand its fleet of Russian-built helicopters in future, so Russian Helicopters stands ready to offer its Chinese partners the most advanced models, including the latest multipurpose Ka-226T and Mi-171A2.

Civilian and combat operations

The supplies of Mi-171 civilian helicopters to Indonesia continue. In November 2013, Russian Helicopters provided the Indonesian company of AirfastIndonesia with a second Mi-171 civilian multipurpose helicopter produced at the Ulan-Ude Aviation Plant. The delivery strengthened further the cooperation which began in 2012.

In December 2013, the Defence Ministry of Peru announced the completion of the negotiation process concerning the purchase of 24 Mi-171Sh helicopters. The Latin American country will get the first batch of helicopters in the second quarter of 2014, whereas all of the obligations related to the delivery of helicopters under the present contract will be performed completely in 2015. Mi-171Sh helicopters will be used by Peruvian troops to combat drug trafficking and terrorism in the valleys of the Apurímac River, the Ene River and the Mantaro River.

New helicopters coming soon!

Meanwhile, the development of other advanced Russian helicopters and their entering the markets continue. The model range includes the most important aircraft sought-after

in the market, such as Ka-226T, Mi-38, Ansat, Mi-171M, Ka-62, Mi-34C1 and others. Russian Helicopters is also working on an advanced high-speed helicopter, the main purpose of which is to establish a system of maximum transport accessibility of Russian regions.

Productive interaction between the Russian holding and the leading Western companies becomes particularly prominent here. It enables to implement one of the most important priorities – speeding up the implementation of helicopter programmes. For example, an agreement was signed with Turbomeca on the launch of a maintenance centre supporting the entry into service of Ka-226T and Ka-62 helicopters powered by French engines. Besides, there are already contracts in place to supply Ka-62 helicopters in future to Colombia. Designed for the local Ecopetrol company, they will be used in the oil industry. The first Ka-62 helicopters are expected to be delivered in 2016.

Russia's latest Mi-38 helicopter is also very popular with foreign customers. In the opinion of Georgy Sinelshchikov, Chief Designer at the Mil Moscow Helicopter Plant, Mi-38 pro-

gramme opens up a new market niche between the medium-lift multipurpose Mi-8/17 and the record-breaking heavy-lift Mi-26. Its significant benefit is that it can be fitted (depending on what the customer wants) either with domestic TV7-117V or foreign engine produced by Pratt & Whitney Canada – and that is its biggest competitive advantage. The helicopter is generating more and more interest from potential customers.

The extremely successful system

In terms of bringing Russia's helicopters to the global marketplace, the history of Ka-52 Alligator combat helicopter can be regarded as quite illustrative. The supplies of this aircraft to the Ministry of Defence of Russia were continued by a transfer, in December 2013, of another batch of several helicopters designed for the Western Military District's army aviation.

At the same time, Ka-52K naval version, currently under construction, will be deployed on the new Mistral-class amphibious assault ships. That is, the aircraft will not only be fully adapted to operating from the ships of the NATO standard, but it will also significantly increase their combat capacity and,

therefore, their export potential. In this connection, it would be logical to agree with Mikhail Barabanov, Director of the Centre for Analysis of Strategies and Technologies (CAST), who has stated that cooperation between Russia and France should not be limited to the purchase of ships. "If Russia purchases the third and fourth ships in this class, we may consider the question of the French Navy offsetting part of it with the purchase of Russian Ka-52K Alligator helicopters for their Mistral and Tonnerre ships," Mikhail Barabanov told Interfax-Military News Agency. "The Mistral-type ships and Ka-52K helicopters form together an extremely successful armament system."

Great traditions ensure great prospects

So it is hard even to imagine today what role the Russian-built helicopters will be playing in the near future, and what they are going to become for the traditional Russian and the new global helicopter markets. However, according to experts, the technology produced by Russian Helicopters has great prospects, – actually, same as the entire history of the Russian (Soviet) helicopter industry indeed.

Andrey Vezhnovets



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The leader of a product line will arrive on the market with the domestic engine

Mi-38 with Russian TV7-117V engines makes maiden flight

Russian Helicopters and United Engine Corporation (UEC), subsidiaries of Oboronprom, part of State Corporation Rostec, announce the successful start of testing of the third prototype Mi-38 helicopter fitted with Russian-built TV7-117V engines. The new engines have been specially developed for the new transport and passenger helicopter by Klimov, a UEC company.



The third prototype of the Mi-38 made its first flight on 29 November 2013. As part of its testing plan, the Mi-38 completed a circuit of the flight-testing centre of Mil Moscow Helicopter Plant, the Russian Helicopters company that developed the helicopter, at the National Helicopter Development Centre in the Moscow region town of Tomilino. The Mi-38 with new Russian-built TV7-117V engines first took to the skies on 13 November when it completed testing in hover mode.

The positive test results open the way for a swift transition to the start of in-house certification tests to Russian AP-29 standards.

“The Mi-38’s first flight is the successful result of collaboration between Russian helicopter constructors and engine-builders. The Mi-38 represents a new generation of helicopters that provide the highest standards of safety and comfort,” said Russian Helicopters CEO Alexander Mikheev. “Thanks to its TV7-117V engines, the Mi-38 has a significantly broader range of potential applications, which will give it an additional competitive edge and make the helicopter even more attractive to both existing and new customers.”

“The creation of the TV7-117V engines is one of UEC’s core projects,” said UEC CEO Vladislav Masalov. “The new engines deliver

increased power and fuel efficiency. Construction of a test batch of the TV7-117Vs will begin shortly for certification testing, which is planned for the end of 2014.”

The new turboshaft TV7-117Vs generate thrust of 2,500-3,000 hp and are based on the TV7-117 turboprop engine, with which they are more than 90% compatible. The TV7-117V improves safety by making emergency power of 2,800-3,750 hp available when necessary. The engine features a new FADEC system using the BARK-12 or BARK-57 electronic engine control unit. The use of the TV7-117Vs on the pre-production Mi-38 is the result of successful work by the experimental design group, most notably in developing a connecting unit between the main rotor gearbox and the engine, optimising the cooling systems for the engine and main gearbox, and improving the automatic engine management system. The multirole Mi-38 can be used for cargo, passenger and VIP transport, and can also serve as a flying hospital and for offshore operations.

Thanks to its spacious cabin, low levels of noise and vibration, and numerous innovative features, the Mi-38 offers the highest levels of comfort of any machine in its class.

Other competitive advantages include high cruising speed of 295 km/h and range of 1,200 km. In addition, the Mi-38 surpasses other helicopters in its class in terms of cargo-lift, passenger capacity and other flight capabilities.

The second prototype Mi-38 fitted with Pratt & Whitney Canada Engines completed its first flight on 24 December 2010, and has produced outstanding results during extensive testing in 2012-2013. At the 14th FAI World Helicopter Championship (held on 22-26 August 2012 near Moscow) the helicopter set a new altitude record in the E-1h category (the FAI category for helicopters between 10,000 kg and 20,000 kg), climbing to more than 8,600 m.

Certification of the Mi-38 is expected to complete in 2015. Serial production is planned for 2015 at Kazan Helicopter Plant, a Russian Helicopters company, where the fourth prototype of the helicopter – the final one before the launch of serial production – is currently being assembled. The fourth prototype will be fitted with a shock-resistant fuel system by Aerazur and enlarged window openings. Serially produced Mi-38s are planned to be fitted with Klimov TV7-117V engines.



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**ВЕРТОЛЕТНАЯ
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Ka-32A11BC



Russian pilots for the first time in our nation's history circumnavigated the terrestrial sphere in helicopters

Full circle

In September they returned from their round-the-world journey, which lasted 43 days and 220 flight hours. In Robinson R66 helicopters they went almost 40 thousand km (the exact figure: 39,448 km), they passed through all the climate zones, they flew over Greenland, North America, Kamchatka, Chukotka, they crossed the Atlantic and returned home conquerors. Conquerors of time, space and stereotypes.



It's no wonder that a helicopter round-the-world trip should become one of the most talked about events in the world of sports and extreme sports (at least until Klitschko fails to beat Povetkin). The country applauds its heroes. Let's introduce them to anyone who doesn't already know them: **Michael FARIKH, Alexander KURYLEV, Vadim MELNIKOV, Dmitriy RAKITSKIY, Dmitry KUBASOV.**

Michael FARIKH: leader of the expedition. An experienced pilot and traveller, he has participated in search and rescue operations, has actively promoted increasing flight safety and changes to aviation legislation.

Personal milestones: "Aeroklub" (Aero Club) expeditions: Nordkapp - Gibraltar, Moscow - Sakhalin and many others

Alexander KURYLEV: Honored master of Russian sports and "Aeroklub" pilot for the "Aviamarket" company. In 2006 Alexander became the all-round world aerobatics airplane champion.

Personal milestones: First transatlantic and Baltic flights, Nordkapp -- Gibraltar expedition, and numerous flights throughout Russia and Europe.

Crew: RA-06350

Dmitriy RAKITSKIY: Chief pilot for the "Aviamarket" company. Total flying time in all types of aircraft: more than 12,000 hours, total flying experience: more than 35 years.

Personal milestones: a transatlantic flight, a Baltic flight, flight across the US, flight to the North Pole and Moscow - Sakhalin flight.

Vadim MELNIKOV: "Aeroklub" pilot for the "Aviamarket" company, a fan of long-distance helicopter flights. He began pilot training in 2010 on the Robinson R44 helicopter in which he has flown around 200 hours. Then he decided to master the R66. Total flying time in Robinson helicopters - more than 600 hours. So Vadim is the most experienced Robinson R66 pilot among the crew.

Dmitry KUBASOV: Photo and video cameraman, director, actor. In 2008 he played a major role in the film "Ozero" ("Un lac" = "The Lake"), from the French director Philippe Grandrieux, has participated in the "Horizons" section of the Venice Film Festival. As a director he created a number of works which enjoyed success at the festivals: "Tanya the 5th", "Alekhin", "Zima, ukhodi" ("Winter, go away"). He is one of the authors of the "Realnost" ("Reality"). A film based on the flight and created from uniquely shot materials is "in the works".



"There are a few current turbulences"

The idea of a round-the-world flight in helicopters occurred a while back, about 10 years ago. At that time our heroes were mainly flying the Robinson 44. The desire to achieve something like this did not arise suddenly; it was completely natural: behind each pilot was a fair number of flying hours and years of team-work.

Alexander Kurylev: *"Ten years ago the idea of an around-the-world trip sounded fairly fantastic: flying off in helicopters to as many of the beautiful corners of the earth as possible, places where we had never been before. On the other hand, at that moment we had made more than one flight together, including in difficult conditions, and we understood that the only thing left to do was the full circle. It would be hard to call any one of us the "author" of the idea - it was already hovering in the air and it just naturally materialized.*

Michael Farikh: *Above all else, no one in Russia had ever flown around the world in helicopters. And in a world of such madmen, there are very few, no more than 18 people. That's when we decided join up with this famous company and to become the first in our country to do it.*

As noted by practically all of the flight crew, most of them have known each other for a long time, and not just known each other, they had come together as a crew. The aircraft - Robinson R66's, these would not raise any doubts. So "to test ourselves and the world for endurance" was not the only goal. What they wanted most of all was to see "the beautiful corners of the world which we had not yet seen", and to do it with the aid of a helicopter, their own knowledge and training -

all members of the crew spoke about this.

V.M.: *Each of us, of course, had his personal interest: for some - career advancement and confirmation of titles, for some - as a tribute to an established family tradition, to visiting hard-to-reach places, for some - it was important to set an example for their children - to overcome any difficulties by your own strengths, and leisure need not be just "bourgeois", etc.*

However, at the preparatory stages for the flight the social goals of the trip also took shape. For example, drawing the attention of young people to the helicopter sport. And again "We wanted to convince our fellow countrymen that flying was not only possible, but necessary", said V. Melnikov. Not only abroad, but here in Russia. But the flights should be comfortable from a legislative perspective. And there is nothing technically complicated about it, you just need a common desire of all participants in the process".



Arranging the puzzle

And the preparations for the flight began. Basically, the total flight time by itself serves as preparation, as Vadim Melnikov correctly noted. But there are also specific measures. All the members passed training courses in flying over water (including splashdown), instrument flight (IFR), including night vision. As for the choice of aircraft, that was obvious to everyone -- only a Robinson.

M.F. : It's the most popular helicopter in the world, including in our country, because of its optimal combination -- "price-quality". We had flown earlier in the 44's, but when the Robinson R66's appeared, we switched to them. Maybe for some people they aren't sufficiently comfortable -- for them there is perhaps, the Augusta 109, but that takes a bit more money.

A.K. : We flew in the Robinson R66 throughout 2011-2012, although at the same time we continued using the model 44's. Why did we choose the R66 models at all? First of all,

they fly on kerosene, which is reasonably priced in Russia, in contrast to avgas (aviation gasoline), on which the R44 runs. In the second place require less technical maintenance, fewer routine repairs -- for over 200 flight hours (Robinson R44 manages without technical maintenance for only 56 hours).

And Dmitry Kubasov, the cameraman for the round-the-world trip, it turned out that he had suffered throughout his life from aerophobia (fear of flying). But the moment he got into the Robinson cockpit, his fear disappeared.

With each new flight the pilots moved ever further from the airfield, selecting the most interesting and challenging flight routes -- "the trickiest". A good kind of training came from flights to the North Pole and to Sakhalin, as well as around Europe. They all then logged on to the round-the-world flight route, that is, to accomplish the flight the pilots just needed to arrange the "puzzle" from those stages already developed. The

preparatory flights allowed them to learn about their gear and to test themselves.

Thanks for the code

The pilots received invaluable flight experience in complex and even harsh conditions - but that's not all. The foreign flights left them with "one big new feeling", as V. Melnikov described it, comfort -- legislative comfort. In Russia not so long ago every helicopter flight was like storming an impregnable fortress, starting with on-board storage and continuing to port conditions. You must have a very serious reason to fly here. "This is what you think before each flight -- and do you really need that at all? Might it not be easier to move the aircraft abroad?", V. Melnikov shares with us.

But if the mountain will not come to Muhammad, then Muhammad must set off for it; the required changes in the legislation will not arise on their own -- it means that they need





help. That is, cause it to happen. Especially since an understanding of what is needed has already taken shape. And you can really say that we are largely indebted to these people for the appearance of the new Air Law.

A. K.: *Flying abroad we have become familiar with flight legislation in other places and we already understood what is needed for comfortable flights in Russia. And after that as we completed a transatlantic flight and made three more flights in 2009, we introduced an initiative for major changes to legislation without which projects similar to round-the-world flight would simply be impossible. In 2010 the new Law became effective which allows you to fly around the Russian Federation in greater comfort. On the one hand this was an immense victory, on the other -- the coming into force of the new Air Law was in fact the actual start of our round-the-world trip.*

In order to test the new Air Law in action our pilots made a Baltic flight. The result was almost stunning: "If, in 2009 it took us 1.5 months to cross the border, then a year later it took us just a few hours", A. Kurylev recalls.

There is no word for helicopter!

The pilots' impressions after their round-the-world trip were of course, numerous. All crew members recall hitherto unseen beauties like Greenland and Alaska; Kamchatka and Chukotka caught their fancy even more. Dmitry Kubasov had the chance to fly a heli-

copter for the first time (which was, of course, not enough); this too was an unforgettable sensation.

V.M.: *Truly Greenland took my breath away - an icy desert 500-600 km. long. But our own Russian beauty is in no way inferior (quite the contrary) -- Chukotka, Kamchatka. It is just sad that they are so much less reachable to us than any other parts of the world, even Australia, even South America. You're not going there just to relax with the family.*

A.K.: *Of course I like the places where I hadn't been earlier -- Kamchatka, Baikal, the Far East, Chukotka. The biggest discovery was*

that Alaska's and Chukotka's nature are roughly equal (and what was even more significant for us), the latitude is the same. And yet the living conditions are for some reason so different!

Undoubtedly for the leader, of the things which evoked emotions one was the flight over the Atlantic Ocean. Underneath -- blue water, above -- blue sky, to the left and right -- clouds -- a cosmic rapture! Unbelievably beautiful but also terrifying...

V.M.: *The flight over the ocean was life-threatening and strictly speaking, crossing it in helicopters (and in other aerial vehicles) without special survival equipment is prohib-*



ited. Should anything happen it is practically impossible to save yourself despite any previous training. Because after a small splash-down you still have to reach the shore, and how this can be done is known only theoretically. And how can we make sure that they will find us? Generally help, in essence, is not waiting anywhere. We took this step en-

nothing to be ashamed of. Nevertheless they made it, having accomplished again a significant victory.

They remember with anxiety the crossing of the border between Canada and the US -- psychologically this ordeal turned out to be no less complex than the flight over the At-

with respect to Russian Kamchatka, Chukotka, the Far East being defined as "hard to reach places" is fair, then on the other side of the Pacific Ocean it's all completely different. Vadim Melnikov mentioned that these places are virtually inaccessible for the average Russian -- you won't be going there with your family: first of - the ex-



tirely at our own risk, under our own responsibility -- we all understood this perfectly.

In their vehicles and having successfully completed their flight route the pilots were 100% confident (and the Robinson 66 really never produced any unexpected reactions). Nonetheless:

M.F. : *Quite frankly, flying for about 12 hours at a height of several thousand meters and seeing under me only endless watery expanses is not very comfortable. But the main thing is I am not speaking of the helicopter which we in fact were flying. You know how they put blinkers on horses so that they wouldn't be frightened of the wagon? It's the same here -- better not to think about it.* And if the fearless Robinson R66 was not feeling so confident, the people certainly had

lantic; Vadim Melnikov says, "In the event of our being denied [entry] we anticipated the prospect of a return by the same route by which we had flown here -- and we didn't really want to relive what we felt we had already been through" (including recrossing the ocean -- VI).

Here you do not have Alaska

No less powerful than the flight crossing over the Atlantic were the impressions of discovering the remote corners of Russia. And comparisons with the northern regions of the US and Canada, in particular Alaska. And if,

pense, secondly - there is way to get to them, there is no air traffic anywhere, never mind terrestrial means. Enormous territories remain, in essence, cut off from the "mainland".

"We were of course fortunate to be able to see these wonderful places. But on the whole you must have a powerful motivation to reach them", says V. Melnikov.

A.K.: *The standard of living in such austere places is directly connected to the level of transport accessibility. It's expensive to build roads for obvious reasons, but on the other hand small aircraft are the most economical means of transportation for the northern latitudes. The cost of one flight hour in a helicopter cannot be compared with the cost of a large airplane which must bring one shep-*





herd to a pasture and take him back. Furthermore, small aircraft allow for the maximum preservation of the natural environment, for not disturbing the landscape. If small aviation is introduced there, it can only mean the qualitative improvement of the standard of living in the region.

Furthermore, thanks to small aircraft, visiting this wonderful land will not mean by example a greater number of tourists. A. Kurylev gave an instructive example: in a small territory of Alaska there are 800 aviation companies. But what represents a company in Alaska? "A father and son buy a small airplane for the price of an off-road vehicle, quickly create a company (on the "one-stop" system) -- and they're ready for business. They themselves do the flying and also offer commercial services. This includes mail, tourism, hunting, and medicine, if needed", Alexander explains.

And all of this, he is confident, can be fully achieved for a price - there are many low-cost airplanes being manufactured throughout the world. Helicopters are more

expensive, but they can be purchased on credit, leasing can be offered. In this way one of Russia's age-old problems -- roads, will be resolved by means of small aircraft. But another tribulation will remain -- the bureaucrat. The members of the flight crew acknowledge: after such trips comes the bitter realization -- how much all of us are "overbureaucratized".

A.K.: *Take two identical villages or small towns -- in Alaska 800 residents and in Chukotka -- also 800 residents. In Alaska: one mayor, one police officer, that's it for the authorities. They provide for business development and the region's economy. And in Russian Chukotka? An entire administrative staff! Bureaucrats, in essence, decide what can and cannot be done, they issue permits, frequently the essence of their questions cannot be understood. More freedom should be given to entrepreneurs -- not anarchy, but simply the freedom to make decisions. And then, to lease a helicopter or buy an airplane, requires only so many permits and some cash, this is so basic that it needn't take any-*

one's time. It's simply that no one is very interested in the development of the region's business and economy, because they are all receiving salaries (large ones) from the state budget.

What's next?

The question is quite natural. There are plans likely, but not all crew members are ready to share them (that's all right, surprise us). Of course, the wish to publicize their current experiences and to try and change the situation with the small aircraft industry for the better -- Alexander Kurylev and Vadim Melnikov spoke about this. As for the next flights, there is no simple answer.

V.M.: *It is somewhat difficult for me personally to imagine what form the next trip will take. The record connected to beating the record for our flight route is one, but it has already been made. Logically we could either "go for speed", or undertake some quite long flight -- but in that case we would have to pursue some research goals. But here we would not be the first ones. I think it will be difficult to find an incentive. What banner should we fly under? Perhaps it makes sense just to reach far-away places -- South Africa, South America, Australia, New Zealand. To fly to the South Pole -- that of course, is suicide. But on the whole, to fly to other continents would be interesting.*

Well, whatever the motivations and banners of subsequent flights, we wish from our souls that they, these flights will take place without fail.

Maria SHCHERBAKOVA



An air corridor for chief executives

2012 became a milestone year in the history of Russian "small" aircraft. By the end of last year the chief executives of the Russian state - Russian President Vladimir Putin and Prime Minister Dmitry Medvedev decided to become serious and permanent users of helicopter transport, and the chief property managers of the Russian President set about developing a program for the creation of travel corridors for the Presidential helicopter in the country's airspace. Of course the country's President and Prime Minister had previously used helicopters in the course of working visits around the country, having at their disposal an entire fleet of aircraft; but in the capital region - in Moscow and the Moscow Oblast - the chief means of transport for Russian leaders has remained armored executive class automobiles.

One of the reasons for the pivotal reorganization of the transportation support system of the country's chief executives was the intention to minimize the impact of routine events when the President and Prime Minister are driving through Moscow's already overburdened road transport system within the capital megalopolis. This was a responsible and well thought-out decision, which was dictated not only by considerations of public image but also by the interests of a large number of citizens.

Following the example of countries with advanced helicopter service, an increased use by chief executives was preceded by putting the infrastructure in order - by the construction of heliports in the Kremlin and at the Government House and additional points of ATC (Air Traffic Control).

It should be noted that in changing from limousines to helicopters the heads of state

took a fairly serious step with regard to the helicopter industry. By virtue of their high status they immediately became initiators of a new trend, and they whipped up public interest in rotary-wing technology. And the helicopter community acquired heads of state and like-minded individuals as partners. On the one hand it appears a certainty that the high-ranking helicopter passengers are cozying up to the sectoral and economic aspirations of the operators, designers, and manufacturers of helicopter technology. On the other hand we are awaiting an increase in user standards within the sector, raising the beam from the point of view of the technology and the operating characteristics. Today Russia's helicopter transport sector is living with the new federal laws regarding use of airspace - FP IVP (FAP 138) (Federal Regulations regarding the Use of Russian Airspace (Federal Aviation Regulations 138)), which became law three years ago, in which for the first time the notification procedure for its use was defined. This decree created new possibilities for both large commercial operators and for personal owners of aircraft.

The measures and efforts of the government should be remembered in this direction. The Russian Ministry of Transport and the Federal Agency for Aerial Transport conducted much of the preparatory work on reviewing the boundaries of restricted zones, hazardous zones, zones restricting flights, by approving VD service routes (Helicopter Watch System), the zones and areas of the unified ATM system terminal area, heliports and categories of airspace; the previous 75% of flight restriction zones in the Moscow Aerial Zone has been reduced by almost half, and a map of the MVZ (Moscow Aerial Zone)

became spotted and transparent. The Russian government intervened in the affair, insisting on increasing the Class G airspace in the Moscow Aerial Zone.

It is symbolic that the state, which to a large number of aviators is associated with the practice of prohibitions and restrictions, became one of the initiators of the liberalization of the IVP. Similar resolutions are an integral part of the current state policy, which is gradually creating space for private initiatives in areas formerly closed to them. This is an inevitable movement toward those initiatives which emanate from members of the helicopter industry - from those who fly constantly and are attempting to conduct a difficult business in Russia.

Representatives of commercial helicopter aviation gave a demonstration both to their colleagues and to officials of all of the advantages of the newly emerging helicopter environment, how to easily and conveniently obtain helicopter transport services. Right before our eyes with the growth of the helicopter fleet there is taking place the rapid development of the industrial service sector - the construction of heliports, helipads and technology centers. Now, Russia's President and Prime Minister believe in this helicopter reality. At the same time, in spite of the efforts of representatives of the flying community and aviation authorities, the Moscow Aerial Zone continues to be half-closed both for general aviation and for commercial aviation because of holdouts from the military authorities and other classified enterprises within its territory. And the fight between the previously unchallenged masters of the airspace zone and its new commercial clients in the last three years has become a kind of tug-of-war. Unfortunately, after the country's chief executives made the transfer to helicopters, ordinary users of the airspace were increasingly confronted with the need to postpone and transfer their departures because of the flights of the Prime Minister and the President. Forums and social networks were filled with accounts by private pilots and commercial pilots on the impossibility of normal flights in the vicinity of Moscow because of the routine practice of "covered skies". Ac-

tually, all "blemishes" of the chief executives' security system on the ground were migrated to the airspace - and now also the unjustified periods of "closed skies" and limited importance of the width of the air corridor.

Here it might be worth turning to foreign experience. The allocation of airspace for governmental chief executives varies from country to country. In the leading countries, in order to ensure the safety of leaders they also practice a ban or restriction on the use of airspace; but, as a rule, these restrictions are refined maximally so that the spec-ops does not interfere with the work of not only the police and medical flights, but also with commercial helicopter pilots.

Thus a wide aerial corridor is guaranteed for the helicopter of the U.S. President by the aviation authorities, and all participants in air traffic receive notification of the closure of the isolated airspace. It is well known that more than once light private airplanes and

helicopters have blundered into this zone by mistake, and fighter jets were sent up to intercept them; however, these incidents did not become the basis for tightening of the procedures.

An important moment in the American practice is the cooperation of private pilots with air traffic controllers, the absence which users of Russian airspace complain about. Pilots may find themselves in the air at the same time as the President - on parallel or different flight levels - and they can always count on a correction to their course by the air traffic controller, who is tracking their positions on a monitor.

In similar countries with an even more advanced liberal system directors and all others involved in managing air traffic services administer them on a first-come first-served basis.

The Russian tradition is closer to the reinforced American version of security, but this

system can be streamlined for the benefit of all those involved in air traffic management. In reality the situation with the temporary prohibitions in the Moscow Aerial Zone is not insoluble and can easily and quickly be overcome. Today's users of the airspace as never before can count on a constructive dialogue with the authorities. Because in moving from limousines to helicopters, the heads of state in fact started up a process of the further liberalization of the airspace not only within the Moscow Aerial Zone but across the entire territory of Moscow. And opening the skies in the capital region has become a question of time. The President and the Prime Minister have more than once taken the lead in the socio-political sphere; now it is within their power to elevate and regulate the Russian aircraft control system and to become guarantors of an authentic openness and accessibility to the Russian skies.



The Korean fleet of Ka-32's created an enviable reputation for the helicopter in Southeast Asia



Ka-32A11BC. Many are called, but few are chosen

The Ka-32A11BC helicopter developed by the "Kamov" Design Department, belonging to Russian Helicopters is one of the most frequently sought-after domestic civilian helicopters in the world. And the popularity of this unique "workhorse" grows with every passing year.



By agreement between the "Yitong" corporation and Russian Helicopters, Ka-32 helicopters will be assembled and manufactured in the PRC

With an eye to the East

At present more than 140 machines have already been manufactured, of which about half are being used in more than 30 countries around the world. Today the Ka-32A11BC is certified in the largest regions of the world: in North and South America, Europe and Asia. Helicopters of the Ka-32 type with various modifications are being successfully used by national operators in Spain, Portugal, Columbia, Switzerland, in Canada, South Korea, in Taiwan, in Japan, China, and other countries. The countries of Southeast Asia have shown a special interest in our helicopter and Russian Helicopters is now very actively promoting the Ka-32 specifically in these regions. As a result the inventory of 32's has grown here to a really impressive size. The Ka-32A11BC was certified in China, Indonesia and South Korea back in 2008. In South Korea alone, thanks to the delivery of "thirty-two's", beginning at the start of the 1990's, more than 60 Ka-32 helicopters were operating with various modifications! In a complicated transitional time contract relations between the "Kamov" Public Corporation and the Korean LG Corporation for the supply and maintenance of helicopter technology saved the legend of Russian helicopter construction and its unique creative team from disappearing. Korean fleets for the protection of the forest industry, with subdivisions of maritime police and the rescue service, were reinforced by Ka32T's, Ka-32A's, and Ka-32C's being run in Russia. In only a part of a single forest

service there are 31 units of Ka-32's (29 Ka-32T's and 3 helicopters of the "A" version), distributed to over two dozen specialized fleets. In no other country in the world is there such a rich experience of helicopter technology for a single purpose. The Korean partners were guided by the logic of unification, which allowed for the maximal optimization of costs for aircraft fleet maintenance, and they got their money's worth. And today South Korea has resources of professional pilots and technicians for the maintenance of these helicopters which are virtually equal to Russia's, which could have serious consequences for the further advancement of the "thirty-two's" in the most dynamic market in the world. Those who are offering Ka-32 helicopters to their neighbors in the "Land of the Morning Calm" there is no need to prove the operational and flight performance qualities of the Russian helicopters "from the ground up". For its presentation it is sufficient to set out on high-speed trains to the improvised Ka-32 showrooms in the South Korean Gimpo International Airport or the forest service base in Chonnam Yeongam.

Recently an international version of the Ka-32 also won the Chinese bid as a result of which China purchased 20 Ka-32A11BC helicopters. Besides this, in the future several more bids are expected in various regions of the PRC, which could increase the Chinese colony of Kamov machines many times over. However, the Chinese intend to not only purchase the Russian compound helicopters; it

is well-known that the Chinese corporation "Yitong" has signed a cooperation agreement with Russian Helicopters, according to which the assembly and production of the Ka-32 will be set up. The project will be implemented at an aviation manufacture center in Beijing. India has also shown great interest in our helicopters. In particular, in 2011 the Ka-32A11BC was delivered for operation in this country. This decision was made by the General Director of Civil Aviation (DGCA) of the Republic of India on the basis of the helicopter's being certified by the European Aviation Safety Agency (EASA). And at present active negotiations are taking place for the purchase of the first shipment of Russian machines.

By day and night, on land and at sea

What is it about this helicopter that our Asian partners find so attractive? To begin with, the Ka-32A11BC is the most modern version, which by its capabilities surpasses the previous models and fully conforms to western specifications.

The "Potomok" military helicopter is ship-based, allowing flights over the sea, to achieve the most complex missions. It can continue flying even with only one engine and carrying a maximum load. The Ka-32A11BC was developed for operation in the most unfavorable weather conditions, by day or night, on land and at sea, including over open ocean. Both in regions with an air temperature below 0 (a very valuable asset for Russian ice-breakers in the Arctic), and in the higher latitudes with high temperatures (it



Ka-32 from the Maritime Police in the Pohang city airport in Gyeongsang Province

can ascend at an altitude of 5,000 meter above sea level, with an operational "ceiling" of 5,750 m.). On the technical side, the Ka-32A11BC has a duplicated hydraulic control system and a double "tail" (which improves the control in the autorotation regime (windmilling)). In the body of the helicopter, titanium and composite materials are widely used, which possess anti-corrosive properties. The propellers are triple-hinged, made from a titanium-steel alloy (50%), three blades on each propeller — made from composite materials.

Although the Ka32 is not intended for the transport of passengers, it is nonetheless capable of carrying up to 13 people (for example, in case of an absolute emergency). This machine is intended for the transporting of civilian cargo (especially hanging cargo) and can perform the work of a "flying crane", and for special missions — firefighting, conducting rescue operations and the evacuation of patients (including in rugged terrain). Moreover the Ka32 copes with such missions splendidly.

For transporting cargo and performing crane operations the duration of the flight may be half an hour, and the length — around 200 km, with a suspended cargo of up to 5.0 tons, which exceeds the corresponding figures for larger vehicles. On-board this ma-

Korean bases for the protection of forestry, subdivided into maritime police and the rescue service supplemented by Ka-32T's, Ka-32A's and Ka-32C's running in Russia

chine up to 3.7 tons of cargo can be transported for a distance of around 200 km. And what is more the propellers rotating in opposite directions and the onboard systems provide the Ka-32A11BC with incredible precision, allowing it to gently land its hanging cargo, including enormous telecommunications antennae (which are used by television companies) and electronic transmission installations. The automatic hovering system provides the helicopter with exceptional capabilities. The Ka-32, among other things, can transfer large industrial equipment to an installation site within a metropolis without creating transportation problems; it can then participate in the installation of transmission stations for the power grid, as

well as transporting heavy structures and components to oil platforms on the open sea.

With regard to rescue operations and medical assistance, the Ka-32 can carry on board a wide range of needed equipment: lifting hooks, exterior loudspeaker, stretchers (there is room for two), projectors, a hoisting chair, a system for landing under extreme conditions. A special configuration of the cabin for rescue operations and transporting people is provided. In addition life-sustaining and resuscitation equipment can be installed on board.

On the whole, the Ka32A11BC carries out the heaviest and most dangerous rough work, and it does it far better than many of its rotary-wing counterparts.

And it doesn't burn in a fire!

Nevertheless there is one business in which the Ka-32A11BC today simply has no equal. In the evaluation of experts, natural and man-caused fires have become one of the world's global threats. Each year fire causes colossal destruction to the planet's ecology and to the economies of many countries. To counteract this threat Russian Helicopters in 2013 launched the "Global Helicopter Fire-fighting Initiative (GHFI). It is directed toward increasing the effectiveness of applying spe-



Korean Ka-32 operators at the Seoul Adex exhibition 2013

cialized firefighting helicopters, equipped with helibuckets, water cannons and other fire-extinguishing systems. And the Ka-32A11BC turns out to be precisely one of the most effective tools of the GHFI.

And just what structural characteristics make the Ka-32 the ideal firefighting helicopter? To begin with the helicopter is very compact.

With the comparatively small dimensions and mass of its takeoff weight, it easily carries 5 tons of water in an external sling, just like the heavier helicopters. The diameter of the blades is one-third smaller than in the classical design, and that means that it wins when it comes to working in conditions of urban construction, in locations where there are numerous towers and power transmission lines. The helicopter's lateral stanchions are along the fuselage and due to four points of support (all similar helicopters sit on three wheels or a "ski"), it is very stable — indeed it was designed for landing on a flight deck even under stormy conditions. The Ka-32 is compatible with three helibucket systems: the Simplex 328 and Simplex 348 (3,000 and 5,000 liters, respectively), and the HL-5000 (5,000 liters). In comparison, the cubic content of analogous systems used on the Esquilo helicopter, average 700 liters. The HL-5000 system allows the entire volume of water or fire-retardant material to be

Around a dozen Ka-32 machines working in South Korea equipped with the HL-5000 fire-extinguishing system

dropped in just 50 seconds. Furthermore, in contrast to other fire-extinguishing systems, the Ka-32 helibucket systems use a pump, which allows the water reserves to be refilled from any body of water just one-half meter deep. For example, about a dozen Ka-32 vehicles, working in South Korea, were equipped with this very extinguishing system. The Ka-32 can work in a strong cross wind, which helicopters made in the classical design cannot do. Pilots have noted that a Kamov helicopter can continue working even when other helicopters need to return to their bases. Moreover, in a fire zone there are powerful, ascending updrafts in which a coaxial helicopter behaves in a more stable fashion than its counterparts with a tail rotor. Thanks to its fast rate of climb and power the Ka-32 can abruptly soar upward immediately after dropping water over the center of a fire.

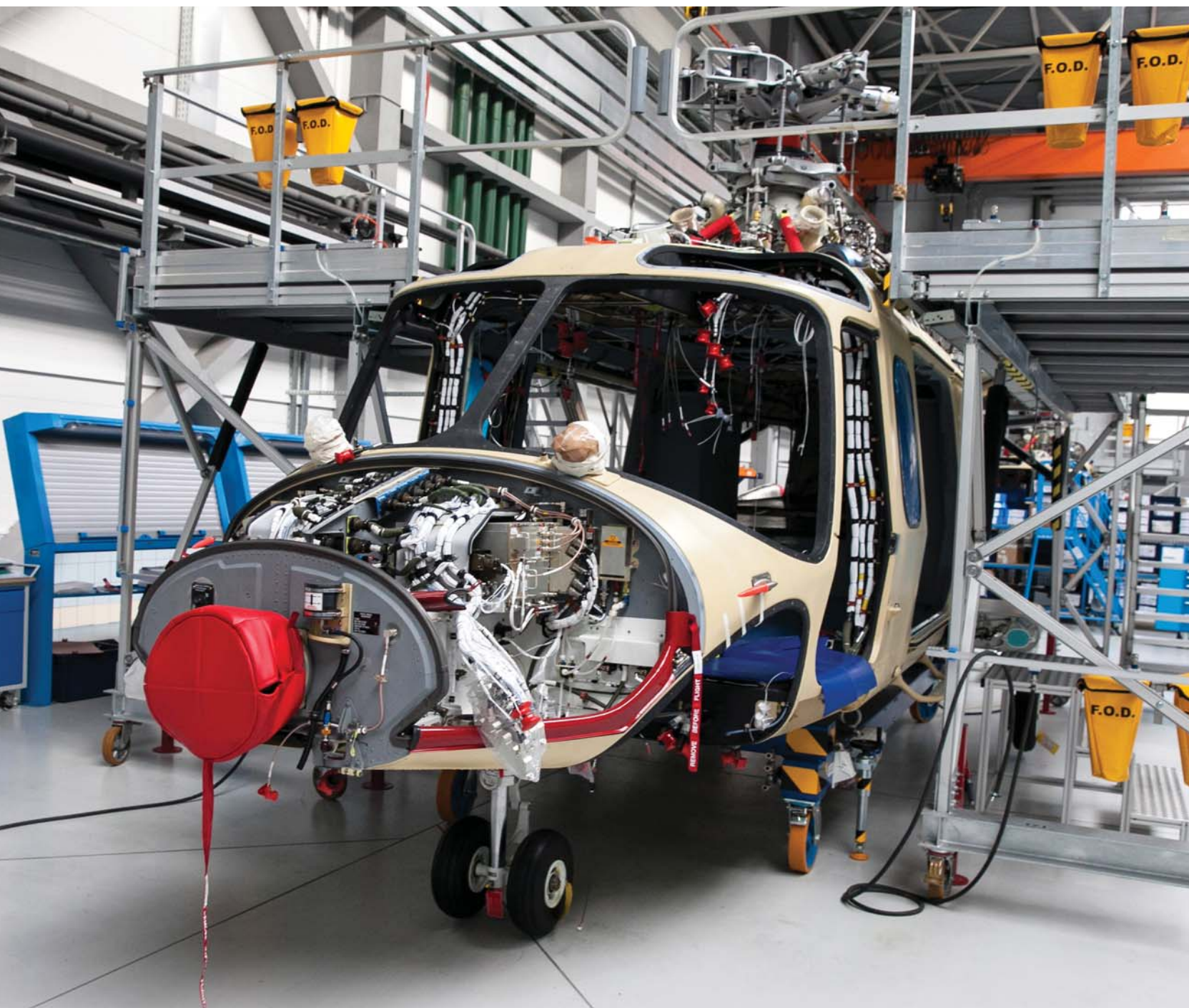
In contrast to light planes, the Ka-32 can conduct its water drop along the edge of a fire which is by no means running in a straight line and can be quite tortuous. Just recently the Ka-32 was also certified for the horizontal water cannon for extinguishing fires in buildings within city limits. The cannon creates a precise jet of water or fire-extinguishing liquid at a range of up to 40 meters. The difficulty lies in the fact that, for this the cannon had to create a self-contained supply source because no power could be taken from a single power unit. Foreign counterparts of these horizontal cannons use an electric water pump. Therefore their range doesn't really shine (up to 20 m.). Our designers used the Hercules water pump with a Rotax gasoline engine operated from outside the helicopter.

In combination with this pump this powerful and compact helicopter turned out to be the ideal aerial firefighter in conditions of crowded urban structures. And it is not surprising that having such technological capabilities for the liquidation of fires in practically any corner of the planet, the Ka-32A11BC has already become a symbol of the Global Helicopter Firefighting Initiative.

Dmitry Gnatenko

EXCHANGE OF EXPERIENCE

The integration of the Russian helicopter industry into international space is becoming increasingly intensive.



Time to open the doors

On the one hand, we see a growing number of domestic aircraft with a foreign “stuffing”. On the other hand, Russian investors are beginning to expand their reach into foreign markets and production.

The need to significantly modify domestic rotary-wing aircraft became obvious as early as the 1980s, however, the country's helicopter industry could not complete this programme independently – in the 1990s, Russian helicopter design bureaus were not getting huge public investments anymore. In spite of a number of attempts to create joint projects with such companies as Sikorsky Aircraft and Eurocopter, the more or less wide use of large components and spare parts of foreign make has started only in the last decade. In particular, new Russian helicopters are using foreign engines quite widely since our domestic engines, unfortunately, fail to meet the necessary parameters.

Mi-38: two fates

Let us look, for example, at a project developed by EuroMil JSC – medium-lift passenger transport Mi-38 helicopter created based on the multipurpose Mi-8. Along with the Russian engine TV7-117V (produced by Klimov JSC), it will be possible to install Pratt & Whitney Canada's PW127TS. There were plans to get TV7-117V certified in the summer of 2014, but it became clear

during testing that, if fitted with the domestic engine, Mi-38 would not be able to take off even by the end of the year. The Ministry of Industry and Trade (Minpromtorg) postponed certification until 2015, and the engine was returned for correction. With increased funding, the cost of the project exceeded 1 billion roubles – and that is only from the budget; a further 1.42 billion roubles will be mobilised through extra-budgetary sources.

"TV7-117V engine is under development for over a decade now," said Alexey Zakharov, an expert at the Finam Management asset managing company. "The problems with TV7-117V engine and Mi-38 helicopter are just a small portion of all problems faced by domestic helicopter industry, which is still stuck with the Ukrainian levers.

As for PW127TS, these engines will be installed only on models designed for civilian purposes, in particular, on commercial helicopters. Military aircraft will be fitted with TV7-117V, once the engine is finalised.

Ka-62 and Ka-226T: comprehensive support

Russia's first experience of close international cooperation in the field of helicopter

The VIP version of AW139 models are particularly liked by Russia's top-level officials

manufacturing was the Ka-62. With the design based on the Ka-60, the helicopter is assembled at the Progress Arsenyev Aviation Company. Here, at the production site of the Russian Helicopters holding, a serial production of the Ka-62 is being launched.

France's Turbomeca (part of Safran Group) released the Ardiden 3G engine designed specifically for the Russian aircraft. The Austrian firm Zoerkler assembled and provided transmission kits commissioned by Russian helicopter manufacturers.

Ardiden 3G is designed for helicopters with a take-off weight of 6–8 tons, capable to carry out different operations in all weather conditions and has the highest performance characteristics in the 1,750–2,000 shp class. The main advantages of Ardiden 3G series in-





clude its high reliability, low operating costs and reasonable brake specific fuel consumption (10% lower compared to the other engines of the same class). Attractive performance figures are achieved thanks to the modular design and the dual-channel FADEC system. The Ardiden 3G is expected to be certified in 2014, whereas a contract for the delivery of 300 units has already been signed.

Turbomeca developed Arrius 2G1 engine (700 to 800 shp class) specifically tailored for Ka-226T helicopters. The Arrius 2, which has gained the reputation as a reliable engine with a substantial resource, served as its prototype.

Besides, Turbomeca intends to provide continuous and comprehensive support for its “creations” operated by Russian companies; the talk is, in the first place, of Ka-62 and Ka-226T helicopters. To that end, the French company together with Russian Helicopters are opening a maintenance centre here.

AW139: for VIPs and others

AW139 with a freight capacity of 2,500 kg has a telling fate. The Italian model is assembled at HeliVert – the joint venture of Russian Helicopters and AgustaWestland – at the Moscow Helicopter Plant in Tomilino. At first, the production of AW139 in the ter-

ritory of Russia caused discontent on the part of domestic manufacturers. In particular, they feared that the Italian aircraft was going to become a serious competitor to Ka-62 (Ka-60 successor), which uses quite a few foreign components – the French Turbomeca Ardiden 3G turboshaft engines and the transmission made by Zoerkler, Austria.

These fears are not unfounded. The VIP version of AW139 models are particularly liked by Russia's top-level officials. These helicopters are used by the air squadron of the Presidential Property Management Department. The Ministry of Defence was going to purchase seven helicopters for the



the project have been named as Quest Helicopters, of Saudi Arabia, and the Aero Vortex design bureau, of Kharkov, Ukraine. The four-seat model with an empty weight of 1,300 kg has a maximum take-off weight of 2,250 kg, a maximum speed of 295 km/h, a maximum flight range of 700 km, and a maximum endurance of 3.6 hours; the structural configuration is “twin rotor – twin engine” (the Progress DB/Motor Sich Ukraine A1-450M engines produced by Motor Sich, of Zaporozhye). But the main innovation of the model (which was borrowed from RUMAS A245) is a unique gyro-stabilised cockpit. In the event of a possible accident, it turns into an ejection capsule that “shoots” forward, with the peo-

transportation of senior officers. However, later the military expressed the intention to purchase 35 aircraft of different classes. According to the plant representatives, to date they have received about 50 orders in total for the manufacture of helicopters.

Marengo: investments into Switzerland

Switzerland has never been a great aircraft-building power, but it has been quite good in terms of providing personnel training for the aviation industries of France, Germany and Italy (including thanks to the lack of a language barrier), EADS, Finmeccanica, Boeing.

But then some enthusiasts came forward who decided to radically change the situation. This is how SKYe SH09 emerged. In 2011, the Swiss sent its full-size experimental model to HeliExpo, and now the talk is already of the serial production. The creation of the model was inspired by Marengo Swisshelicopter Ltd, a company with Russian roots. The noble urge was reinforced by full-fledged investments.

So what is the “breakthrough” SKYe SH09 with a take-off weight of 2.5 tonnes like? Its creators took the risk to put their “offspring” in the same niche with such recognised leaders as Bell 407, AS350, A119 Koala and EC130. To make sure that SKYe SH09 compared favourably to such strong competitors, it was provided with impressive advantages. Currently, it demonstrates the



highest cruise speed (270 km/h) in its class and a large flight range with a standard fuel tank – 800 km.

AVQ: the Ukrainians under the UAE flag

At the Dubai Air Show 2011, visitors were greatly impressed by the multipurpose civilian helicopter AVQ (Project Q) – Saudi Arabia’s first helicopter of this type. The aircraft was almost a complete repeat of the RUMAS A245 model, which was created by Ukrainian aircraft engineers in 2009 (in the Russian-Ukrainian Maslov Design Bureau), but it never found application in its country at that time. It looks like the current version has been supported by investments and adapted to the local conditions. The official authors of

ple inside, and then gently lands everyone by parachute.

The flight tests and certification were expected to be held in 2013 (according to the standards of Ukraine, the UAE and the EASA European standards), and the launch of production was planned for 2014.

In this material, we have presented the most well-known and illustrative examples of the “internationalisation” of Russian helicopter manufacturing. But this selection is not exhaustive as the integration process is not standing still. “Helicopter Industry” will keep the readers aware of the further progress.

**Prepared by
Maria SHCHERBAKOVA**

Moscow skies — all is ready for an opening



The trigger which has launched the most recent expansion in the area of construction of helicopters in Russia was the Federal Aviation Regulations "Requirements for Landing Sites Located on a Plot of Land or on Water".



In anticipation of short-term prospects

So private helicopter aviation took the offensive. And this process is most notable around Moscow. "Every year in the Moscow area about 20 new helicopter sites appear. In addition to those which are built for the needs of the MES (Ministry of Emergency Situations) and the police, the bulk of new infrastructure objects are personal sites", according to Oleg Gordeev, Director of Charter Programs for the 'Russian Helicopter Systems', yet again confirming the mobility and the ability of business to focus its efforts, especially when it comes to the anticipation of short-term prospects. In this case the most attractive of them is opening the skies.

A trend in the Moscow suburbs

It is a fairly recent trend - the enhancement of aviation components in the transportation system in the Moscow suburbs is largely promoted by regional authorities. This is according to Alexander Mitusov, the Minister of Transport for the Moscow Region, when he said in the middle of 2013 that the Moscow area wants to widely use helicopters for ferrying cargo and passengers. It is logical enough to take the design for a development program into the fabric for a road transport complex in the Moscow suburbs until 2018, which the region's Ministry of Transport developed. Helicopter traffic will have its own separate subroutine. The only reservation — for the time being this is for air service with neighboring regions, since the skies over Moscow are closed to helicopters, and around the airports it is overcrowded. Therefore development of air service is planned for Orlov, Tula, and other neighboring areas. Generally speaking the project promises to become investment-attractive.

Tracking the purchase of helicopters

The basis for the leap into the capital's skies was also prepared by private organizations. For example, "Aerosoyuz" and "NDV-Real Estate" announced in August, 2013 a helicopter infrastructure project which provides for the construction in 2014 of 10 helicopter centers on the Moscow

Ring Road. Only \$50 million went toward the construction of a helicopter hub in the Myakininskaya Poima — the first stage of the project. Immediately afterward investors plan another \$50-60 million for the purchase of helicopters. One more hub is planned for the Shosse Entuziastov. It is expected to take 4-7 years to recoup the project. In the first stage the primary emphasis in the work on the helicopter system will be directed at organizing an aerial taxi. In addition to this they will be studying the possibility of organizing tourist travel, and helicopter rental. This would be followed by regular flights.

The key to the start!

In the mainstream last year one heard the October statement by Igor Moiseenko, head of the State Corporation [Note: in the original document the word is incorrectly entered as Госпорпации - should be Госкорпорации — Translator's note] For Air Traffic Control concerning the possible lifting of the ban on helicopter flights over Russia's capital. "It is possible that the ban over Moscow will be lifted; we are working on this. In the city there are already helipads for the MES (Ministry of Emergency Situations). But these flights will be precisely regulated", he said.

In this way the regional helicopter system is in effect taking form, being directed toward the capital air market. A system literally is surrounding Moscow and prepared to enter it at a working distance from a standing start.

The capital doesn't sleep

In the meantime capital leadership isn't just sitting and twiddling their thumbs. Clearly worried about an approaching transportation collapse, the Moscow authorities had already in 2012 presented a subprogram, "The development of new modes of transportation". In it the main emphasis was placed on ensuring the responsiveness of emergency, medical and special services. The point is that by currently basing their helicopters at the "Myachkovo" and "Ramenskoe" airfields (20-25 kilometers from Moscow), they can in fact only guarantee a

A system literally is surrounding Moscow and prepared to enter it at a working distance from a standing start

flight response time of 30 minutes, which is inexcusably long. Moreover, Moscow clearly suffers from a lack of the needed number of helipads within the city limits. Within the capital there are these are the only ones: the "Solntsevo" Helipad (OAO NPP/SPE "Vzlet"); 8 sites on the grounds of the city's clinical hospitals (intended only for evacuation); 3 departmental; 2 extradepartmental.

In this regard there are plans for the construction in every prefecture of at least one site to assure the landing and takeoff of helicopters with a flight weight of up to 3.5 tons for the Ka-226 class, BK-117, freight-carrying capacity of 1500 kg. or capacity for 6-8 passengers. And the arrival time of rescue teams will be reduced to 3-7 minutes.

As for managing and improving the quality of aircraft control over the capital, it is planned to achieve this through the introduction of the "Moscow-ADS-B" (Automatic Dependent Surveillance-Broadcast) system.

In the opinion of experts the following stage — the opening of Moscow's skies for helicopter flights — even in a truncated, "precisely regulated" form — will literally cause the helicopter sector to explode, eclipsing many of the world's metropolises in volume of air traffic .

Tranquillity. The main thing is tranquillity.

In this case, there is a logical interest in the experience of our predecessors. And not just by what means they organized air traffic over metropolises and the interaction of transportation flows, but also in terms of responding to any possible challenges, for example, to aircraft accidents.

The opening of Moscow's skies for helicopter flights will literally cause the helicopter sector to explode

Here London may provide a good example, where in January, 2013, a twin-engine Agusta Westland AW109 crashed into some apartment buildings. The disaster brought calls for the tightening of rules for flights over the British capital. At the same time a preliminary public inquiry into the accident showed that the existing level of control and monitoring was sufficient and should be retained in its present form. Which is to say, a sober approach to the situation did not allow authorities to let their emotions get in the way, and in the final analysis the existing control system was retained for flights over London.

Each environment has its own distinct features

Meanwhile the notion of an optimum for one territory or another at times does not at all make it unconditional. That is, in any event there is only one way to create an environment which takes the majority of its nuances into account. In this case an interesting example of an urban water airport is Vancouver, where the air traffic tower is located on the roof of a 30-story building, and the runways are in the waters of the Fraser River.

In 2012 the airport handled more than 54,000 aircraft. Chiefly these were seaplanes, but the number of helicopter take-offs was around 9,000. Another 21,000 aircraft simply flew through the control zone.

The Helijet Company, which runs the airport heliport, has a fleet of helicopters consisting of Sikorsky S-76 12-seat and Bell LongRanger 4-seat models, and carries out regular flights between Vancouver and the city of Victoria, the administrative center of British Columbia, which is located on Van-

couver Island. The S-76 is equipped to carry out instrument flights (IFR) and can land in inclement weather. The helipad has one landing zone and 4 parking spaces. This station also serves helicopters in transit.

The terminal for seaplanes accepts DHC-2 Beavers, refitted with the DHC-3 Otter turboprop, and the twin-engine DHC-6 Twin Otter. Among other models the Cessna single-engine piston aircraft should be mentioned.

As for the air traffic controllers of this airfield, they only "suggest" a traffic route to pilots over water in the mass of different maritime vessels also using the waters. And flight information is entered into the Extended Computer Display System (EXCDS). It provides online flight coordination, and helps controllers handling flight data electronically with the aid of touch screens. EXCDS permits controllers to instantly "hand over" control of flights to other controllers servicing neighboring zones.

Equipment based on GPS is available for helicopters for permitting flights during cloudiness. Helijet first became familiar with this technology on their Sikorsky S-76 helicopters equipped for GPS flights.

For determining the location of aircraft in the water airport Vancouver uses the MLAT system, which consists of 11 blocks arranged along the perimeter of the air traffic controller zone. Each controls its sector of the controller zone, and together they provide a comprehensive overview down to sea level.

All features are based on one and the same principles

It is interesting that the "Moscow-AZN" automatic dependent surveillance system, which is taking root in the Russian capital via the GU Moscow Aviation Services, is based on the principles developed by Soviet scientists way back in the 1980's. But, as is unfortunately often the case, the widespread practical application of these achievements of our country's science is

found not in Russia, but in the West.

The Global Positioning Satellite System is used as the principle tool for determining navigational parameters of an aircraft (speed, altitude, heading, BC coordinates). In the first stage of implementation of the Moscow urban specific-purpose program in the capital five terrestrial stations were installed, the connection and observation "Pulsar-N" was made in Russia.

The technology standardized within the ICAO (International Civil Aviation Organization), was approved and adopted as one of the basic, currently promising deployable European air traffic control systems. Its chief advantage is that it is ecologically safe for the population.

The complexities and the successes are by more than one order of magnitude

So it seemed completely different from the viewpoint of geography, construction, the space of metropolises within which helicopter flights would be organized, controlled with the aid of systems based on common principles (developed, by the way, in the USSR). Aircraft authorized for flights over metropolises, are also of roughly the same class. It is hard to imagine that the reaction of aviation communities in various countries to the different challenges will produce any serious differences. In that case, what makes the experiences of our predecessors in organizing air traffic control over metropolises so interesting?

First to all, it is worth talking about the psychological aspect, and a system for taking local nuances into account, which in metropolises in comparison with typical airfields is greater by more than one degree of magnitude. As regards Moscow, as always, it will be there in abundance. Much ambition, many flights, stumbling blocks and nerves. In a word, whoever takes the process of opening the skies above the capital to a successful conclusion will find an impressive Muscovite coefficient in the end.

German Spirin