RUSSIAN AVIATION & MILITARY GUIDE

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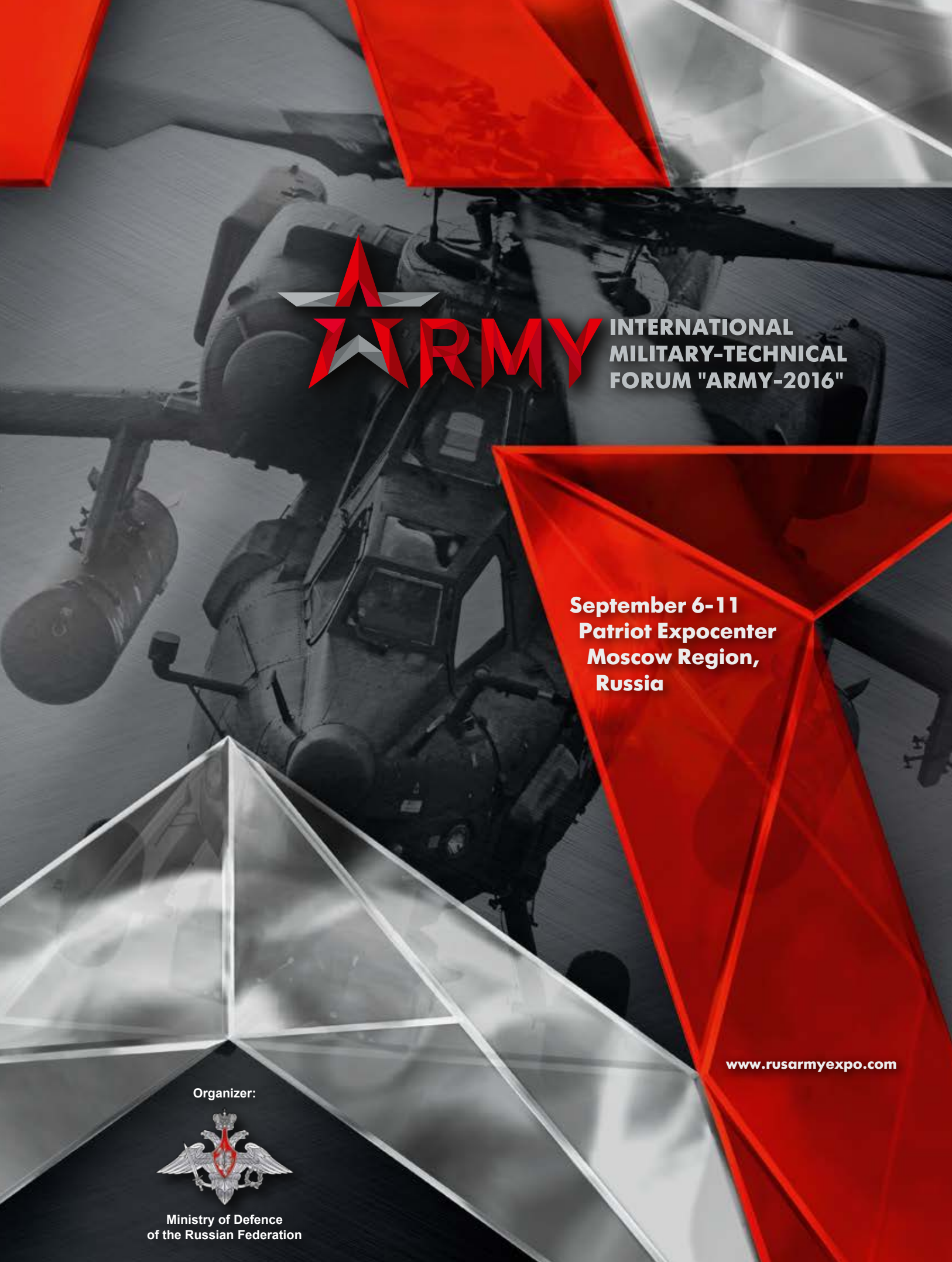
№ 01 (02) February, 2016

New technologies for the new aviation industry

SINGAPORE AIRSHOW

SPECIAL PARTNERSHIP



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EDITORIAL

It's necessary to be strong

Political situation in the world makes nations once again reconsider their defense possibilities. Threat of local conflicts to be evolved into global ones, failure of worldwide system of safety and non-ending economic crisis – all of this leads to an unstable and dangerous situation. One can predict raise of defense means market in times like this. But together with developing of defense technologies in order to secure people's safety, rivalry among sellers of weapons and defense systems increases in order to achieve such goals as increasing profits and market share.

World experience shows that it is not about how many weapons you have, but quality and possibilities of every single one of them is what leads to victory on the battlefield. Other significant factor is technological independence from seller – modern technologies make it possible to shut down any device from any place of the globe if you have appropriate access.

And so we believe, Russia has all it takes to remain one of the leaders of defense market in these conditions. With hi-tech technology, solid after-sales service and proven reliability of products, Russia is honest and friendly partner for all countries, ready for mutual work.

Valeriy STOLNIKOV

Russia and Latin America

Building dialogue at Russia's leading economic forums

On February 5, 2016, a special presentation on the anniversary year of the St. Petersburg International Economic Forum and the Eastern Economic Forum took place at the Mansion of the Russian Ministry of Foreign Affairs in Moscow. Those present included ambassadors and representatives of diplomatic missions of the countries of Latin America and the Caribbean. The event was organized by the Russian Ministry of Foreign Affairs and the Roscongress Foundation.

The event was attended by the ambassadors of 11 countries of Latin America and the Caribbean (Argentina, Bolivia, Brazil, Chile, Cuba, Ecuador, Guatemala, Mexico, Nicaragua, Panama, and Peru); representatives of the diplomatic missions of Colombia, Costa Rica, Cuba, Guatemala, Uruguay and Venezuela; and members of the Russian Ministry of Foreign Affairs and the SPIEF and EEF organizing committees.

Alexander Stuglev, CEO of the Roscongress Foundation, gave a detailed account of the opportunities offered by SPIEF 2016 and EEF 2016 with regard to creating an effective dialogue between the business communities of Latin America, the Caribbean, and Russia. Particular attention was given to the new venue for the St. Petersburg International Economic Forum. In its 20th anniversary year, the Forum is offering a number of special new developments for participants alongside the traditional setup: SPIEF Business Expo, SPIEF Investment Projects, and foreign country lounges.

The meeting with the ambassadors marked an initial step towards establishing direct links with business leaders in Latin America. This initiative will continue in Uruguay on February 26–27 as part of Business Forum "Russia - Latin America". Anton Kobyakov, Advisor to the President of the Russian Federation and Executive Secretary of the St. Petersburg Economic Forum Organizing Committee, said that increasing economic cooperation with the countries of Latin America is a priority for Russia: "Today our Latin American partners are showing substantial interest in building dialogue at Russia's leading economic forums – the St. Petersburg International Economic Forum and the Eastern Economic Forum. I firmly believe that this interaction will facilitate further expansion of Russian–Latin American relations and increase the potential for trade and economic cooperation between our countries."

After-sales service

Russian State Corporation Rostec is preparing to provide after-sales service and maintenance for Russian-made helicopters operated in Egypt. The repair base in Heluane (Egypt) will be retooled in order to provide technical support for repairs to Mi-8T and Mi-17-1V helicopters operated by the Egyptian Air Force.

Under an agreement reached, Russian Helicopters will authorise the Heluane plant as an aircraft repair plant able to carry out comprehensive repairs to Mi-8T and Mi-17-1V helicopters. The Egyptian Air Force's fleet of 41 Mi-8Ts and 3 Mi-17-1V helicopters will all undergo comprehensive repair work at this facility.

'We feel it is vital to build upon the already positive image that Russian-made helicopters have abroad. That is why we are prioritising work to establish an after-sales network providing first-class maintenance and repair services for Russian-made helicopters throughout their full life-cycle,' Russian Helicopters CEO Alexander Mikheev said. 'We urge all those who operate our helicopters globally to take this opportunity to use the after-sales service provision offered by Russian Helicopters or certified enterprises, and to steer clear of dubious suppliers and providers – after all, the lives of pilots and many others depend on the quality of the components used and of the repairs and maintenance work carried out.'

Russian Helicopters' specialists stress that repairs to Mi-8/17 helicopters must be carried out in accordance with the requisite repair documentation issued by the production plant and agreed with the developer. Customers are advised to purchase spare parts and components from Russian Helicopters companies or from certified enterprises.

To support comprehensive repair work to the frames, components, gears and rotor systems in helicopters operated by Egypt's Air Force, Russian Helicopters will deliver equipment for the production line, carry out commissioning work, and transfer all the necessary documentation to the Egyptian side. Egyptian specialists will be trained to carry out comprehensive repairs to Mi-8T, Mi-17-1V and Mi-17V-5 at Russian Helicopters' Novosibirsk Aircraft Repair Plant. Russian Helicopters will provide design and technical support for these repairs for a two year period.

The legendary Mi-8/17 helicopters, developed by Russian Helicopters' Mil Moscow Helicopter Plant, are renowned world-over. These reliable and easy-to-use helicopters are in constant demand. They are used in medevac and humanitarian missions, cargo and passenger transportation, including VIPs. Military transport Mi-8/17 helicopters are designed for transporting troops, and carrying cargo internally and on the external sling. They can also be used in patrol and search-and-rescue operations, and can also carry arms. They have been deployed during combat in a number of theatres, as well as in operations to counter illegal armed groups and narco-trafficking.

Mi-8/17 series helicopters' capabilities constantly expand thanks to modernisation work and the latest equipment – which enables them to carry out increasingly complex operations. Today, more than 12,000 helicopters in this series have been produced and delivered to 100 countries.

Russian Helicopters is actively involved in expanding its after-sales service and maintenance provision to commercial and military helicopter operators in all key regional markets. The service centre infrastructure is expanding in line with the geographic reach of Russian Helicopters' sales. Authorised service centres are operational in: Europe, Latin America, Africa, the Asia Pacific region and the CIS.

Five Mi-171Sh to Bangladesh

Russia delivered a batch of five military transport Mi-171Sh helicopters to Bangladesh's Ministry of Defence. In addition to regular cargo transportation operations and border security provision, the new Mi-171Sh will be used in UN humanitarian missions and in regions facing complex crime problems.

Bangladesh received the Mi-171Sh helicopters under state credit for the purchase of Russian military goods. The contract was concluded by Rosoboronexport in late 2013. The Mi-171Sh helicopters delivered are equipped with the latest avionics, enabling them to land safely at any time of day or night in any weather conditions.

'The geographies to which we deliver modified Mi-171 helicopters expand every year. Today they are in use in Brazil, China, Ghana, Indonesia, Kazakhstan, Peru and beyond. There are real opportunities to continue to deliver the Mi-171Sh to Bangladesh,' said Russian Helicopters CEO Alexander Mikheev. 'We produce high-tech multirole helicopters, which are designed to complete highly complex missions anywhere in the world.'

'Our choice of partners is absolutely clear and fully grounded, the Mi-171Sh is ideally suited to operation in Bangladesh's environment and climate. In addition, our helicopters are renowned for their resilience and ease of operation,' said Leonid Belykh, Managing Director at Ulan-Ude Aviation Plant. 'We are constantly modernising Mi-171Sh helicopters, expanding their operational capacity.'

The helicopters are equipped with additional fuel tanks to increase range and length of flight, as well as an external sling for large cargo transportation. They boast enhanced efficiency thanks to the powerful spotlights and winches that can lift 150 kg, can be fitted with medevac equipment to evacuate up to 12 injured people. They are equipped with armour and protection systems for operation in areas that see heightened activity by terrorist or organised crime groups.

VIP from Russia

ANSAT HELICOPTER is a light multipurpose helicopter in a VIP version that is designed to carry up to 7 passengers in style. One of ANSAT'S biggest advantages is that it has the largest cabin in its class. This allows achieving maximum comfort for passengers. And with the layout that has 5 seats, the comfortable cabin allows to have two closets, a full luggage compartment with a built-in mini-bar and even a carrying case for guns.

ANSAT's comfortable interior provides modern air conditioning with individual settings for lights and airflow. The interior is equipped with energy-absorbing seats with armrests, and additional furniture can be added upon customer's request. The latest sound-proof technology allows passengers to communicate using aviation headphones in flight.

Interior may be covered with artificial or natural leather or decorative coatings with different textures and colors. The surface can be decorated with ornaments with natural veneer of valuable wood. The variety of multimedia capabilities are virtually limitless and depend only on the wishes of the customer.

ANSAT combines traditional and innovative technical solutions: it features all-metal fuselage design that ensures reliability. And at the same time, composite materials in non-power components and blades - which are also made of composites - allow to increase the lifespan of these machines. Hingeless rotor head provides a high level of control when piloting a helicopter in difficult conditions.

By European standards, ANSAT belongs to the class of medium-sized helicopters, while in Russia it is categorized as a light helicopter. It is built on the classic single-rotor scheme with the tail rotor. ANSAT is designed in accordance with the AP-29 (FAR-29) "A" category and has a high level of structural safety. It features two PW-207K engines with a digital control system (FADEC), plenty of power, which ensures continued safe flight in case of failure of one engine, and also provides a safe auto landing in case of a failure of all engines.

ANSATs are designed and manufactured at a Russian Helicopters' Kazan Helicopter Plant. A certified ANSAT can also be used to carry goods and passengers, for surveillance, search and rescue, fire-fighting and medical evacuation operations.

In August 2015, at the MAKS-2015 airshow in Moscow Russian Helicopters showed the VIP version of the helicopter to Russian President Vladimir Putin, Minister of Industry and Trade Minister Denis Manturov, the head of Chechen Republic Ramzan Kadyrov, as well as to the King of Jordan, Vice President, Prime Minister of the United Arab Emirates and the ruler of Dubai, and other high-ranked foreign officials.

Helicopters for Iran

Russian Helicopters (part of State Corporation Rostec) attended the Trade and Industry: Russia – Iran 2015 exhibition and held discussions with representatives of Iranian state agencies and private companies to discuss prospects for the delivery of Mi-8/17, Ka-32A11BC, and Ka-226T helicopters.

The company met with the Iran Aviation Industries Organisation (IAIO), the state body that is responsible for Iran's aviation industry. IAIO is responsible for directing five aviation companies – SAHA, HESA, IHSRC, GHODS and the Shahid Basir Industry – which, together are the mainstays of Iran's aviation industry.

Meetings were also held with representatives of Iranian private companies Fanavaran Asemani, PARS Aviation Service and Interavia. Talks covered the prospects for helicopter delivery, and the opportunities for developing after-sales service provision for Russian-made aircraft, which would include modernisation, spare parts supply, repair work and also training Iranian specialists.

"Iran's economy has developed rapidly in recent years, and the upcoming lifting of international economic sanctions will deliver further impetus for the acceleration of this development. Given the existing highways infrastructure in the regions, demand for helicopters among various agencies, and Iran's potential, cooperation on the delivery of Russian-made helicopters is sure to expand," Russian Helicopters' Deputy CEO Alexander Shcherbinin, said. "Russian Helicopters possesses the production capacity needed to meet Iran's needs for modern helicopters in the shortest possible time."

At the exhibition in Tehran, Russian Helicopters also held talks with representatives of the Red Crescent Society of the Islamic Republic of Iran to discuss deliveries of the Ka-226T helicopter.

The Ka-226T is distinguished by its enhanced manoeuvrability and power-to-weight ratio, and is equipped with the latest avionics suite. It is easy to manoeuvre in densely built up urban locations and mountainous areas. It is a compact model with no tail rotor, which means that it does not need much space for landing. The helicopter produces very little noise and meets the latest ecological requirements. In May 2015 India's Defence Acquisition Council, comprising Indian Cabinet ministers, approved a major deal to acquire helicopters including the Ka-226T for the Indian armed forces, on a no-tender basis. The Ka-226T was tested in conditions that matched India's mountainous terrain and hot climate, clearly demonstrating its superiority over its competitors. In particular, the helicopter flew easily across mountains at altitudes of over 7,500 metres – significantly higher than the organisers of the tender had requested.

The Mi-171 helicopter can transport up to 26 passengers in permanent seats or up to 37 with additional foldaway seats. The Mi-171 has a maximum payload of 4,000kg in the transport cabin. It can be used for search and rescue missions as well as fire-fighting operations, and to lift, load, and unload during flight.

The multirole Ka-32A11BC helicopter is designed for special search and rescue operations, building tall structures, transporting cargo internally and on an external sling, logging, medevac and complex fire-fighting missions, as well as use on patrol and to provide support during special operations.

Prospects for Russian-Indian cooperation

On January 30, 2016, two St. Petersburg International Economic Forum panel sessions on bilateral relations between Russia and India took place in New Delhi: "Fulfilling the Indian–Russian economic promise" and "BRICS growth agenda: investment hot spots in Russia". It was the first time that SPIEF sessions had been held at The Global Business Summit. Prime Minister of India Narendra Modi greeted the members of the Russian delegation in person. The delegation consisted of Deputy Prime Minister and Economy Minister of the Republic of Mordovia Vladimir Mazov, and Minister of Economic Development of the Republic of Bashkortostan Sergey Novikov.

The panel discussions were organized by the Roscongress Foundation and the Times of India media group. The first panel session, entitled "Fulfilling the Indian–Russian economic promise," focused on issues related to developing and broadening economic ties, as well as collaboration in energy, health care, IT, and environmental protection. Taking part in the debate were Corporate Director of the Agency for Strategic Initiatives Marina Korotaeva; Vice-President of AFK Sistema Andrey Terebenin; Vice-President of SUN Group Shiv Vikram Khemka; CEO of Tata Power Delhi Distribution Limited Praveer Sinha; Vice-President of Inspur Technologies India Verinder Aggarwal; and Chairperson of New Delhi's Institute of Social Sciences, George Matthew. Presiding over the discussion was Founder and Managing Editor of Frontier Funds, Gavin Serkin.

"Our cooperation has made advances in healthcare, education and pharmaceuticals. Ties between universities should be built too: India must have more centres for Russian studies," observed George Matthew, Chairperson of the Institute of Social Sciences in New Delhi.

During the session entitled "BRICS growth agenda: investment hot spots in Russia," organized in conjunction with the Agency for Strategic Initiatives (ASI), there were presentations about projects in the republics of Bashkortostan and Mordovia, the Kostroma and Penza regions, and the Russian Far East.

Commenting on the outcome of the event, Anton Kobyakov, Advisor to the President of the Russian Federation and Executive Secretary of the St. Petersburg International Economic Forum Organizing Committee, said that the meetings were held in an impressive, business-like way. "The event was certainly a constructive one. Participants discussed the prospects for bilateral cooperation between our countries, and the practical plans for an expansion of our economic ties," said Anton Kobyakov. "In particular, we touched upon issues related to the holding of the upcoming 20th St. Petersburg International Economic Forum. Some useful proposals were put forward, including those related to the preparation of the programme for the Forum."

After the panel events in New Delhi, a Memorandum of Cooperation between the Confederation of Indian Industry (CII), the St. Petersburg International Economic Forum, and the Eastern Economic Forum (represented by the Roscongress Foundation) was signed. SPIEF and the CII have been working together since 2012. The document was signed with a view to increasing mutually beneficial cooperation in the field of promoting and organizing major congresses and exhibitions of international scope.

Advantages of working with RAUIE

The Russian Asian Union of Industrialists and Entrepreneurs has been successfully collaborating with both Russian and Chinese authorities and business circles for a long time

RAUIE consists of commercial and social organizations, distribution channels, industrial groups, corporations of the Russian Federation regions' development aimed at collaboration with Chinese partners.

The following opportunities are available for all the partners of RAUIE: individuals, commercial organizations, branch unions, associations and authorities:

- Assistance in search for Russian investors, manufacturers and partners;
- Positioning of the company's goods and services in Russia by preparing and conducting presentations and press-conferences;
- Organization of productive negotiations with potential partners;
- Establishment of contacts with Russian officials of various levels and branch unions, GM of big Russian companies;
- Initialization of signing the cooperation agreements and providing government support during realization of joint projects;
- Organization of Russian officials, businessmen and investors visits to China's provinces in order to establish business relations, exchange the experience and establish joint ventures;
- Reception of RAUIE delegation in Russia: organizing the trip agenda (visiting of ministries, departments and factories); complete preparation and maintenance of the negotiations;
- Providing visa support in the shortest time; professional support regarding establishment of joint ventures on the territory of Russia;
- Providing legal aid for RAUIE partners' activity on the territory of Russia;
- Granting the power of attorney to a RAUIE employee in Moscow head office or in the regions to officially represent your company in Russia (and negotiate on your behalf in your interests);

Your partnership with RAUIE will significantly deepen the mutually beneficial collaboration of your company, union or association with the Russian Federation and CIS.

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PARTNERSHIP IN APEC

Towards open and equal cooperation in the interests of development

Vladimir Putin,
President of Russian Federation

Vladimir Putin's article published last year before the major summit on cooperation in the region became one of the key articles about the relations of Russia and the Asian countries in format Asia-Pacific Economic Cooperation.

For a long time trade has been the driving force of economic growth in the Asia-Pacific region and other parts of the world. However, as the effect of tariff liberalization started to wear off, it became clear that we need additional agreements covering services, investment, non-tariff barriers, competition policy, and subsidies. Of course, we cannot reach such agreements without complicated negotiations and mutual concessions.

Deeper regional economic integration offers us a possible way out of the current situation. Today, Russia and its close neighbors — Armenia, Belarus, Kazakhstan, and Kyrgyzstan — have taken successful steps to develop the Eurasian Economic Union (EAEU). Our integration project is based on the WTO's universal, transparent principles and is designed from the outset to work together with other countries and their organizations. In May this year,

we signed a free trade agreement between the EAEU and Vietnam. Another 40 countries are examining the possibility of signing similar agreements.

One example of responsible and transparent partnership is the agreement to converge our EAEU project with China's Silk Road Economic Belt initiative. This will allow us to resolve a number of bottlenecks in transport infrastructure and procedures for cross-border movement of goods and services. It will also give a big boost to effective integration of the Asia-Pacific economies.

We hope to reach mutually advantageous agreements on traditional and renewable energy sources, emergency and disaster response, food security and agriculture at the Russia-ASEAN summit next year in Sochi.

Overall, the creation of new free trade zones will help to create good conditions for liberalizing trade and investment flows in the region. At the same time however, the confidential fashion in which the Trans-Pacific Partnership (TPP) negotiations were conducted is probably not the best way to facilitate sustainable growth in the Asia-Pacific region.

We believe that the strategic road ahead lies not only in increasing the number of free trade zones, but also in joint development and implementation of the best liberalization practices among all APEC members, taking into account each other's positions and interests. In this respect, we should continue our course of bolstering APEC's role as a coordinator of various integration initiatives aimed at developing in the region a common and open market, free of discrimination and bloc-based barriers. Here, effective implementation of the Beijing roadmap for APEC's contribution to establishing an Asia-Pacific free trade zone, approved in Beijing in 2014, is particularly important.

Realizing the APEC countries' development potential will take more than just reaching agreement on the rules of the game for today's trade flows. We need to work out common approaches to development and regulation of the emerging markets that make up the digital technology-based 'new economy'. We need to put in place the institutions and rules that will contribute to development and create new opportunities for our countries' businesspeople to create modern, promising products and high quality jobs.

Russia, for its part, is active in the work of the region's new financial institutions — the New Development Bank BRICS and the Asian Infrastructure Investment Bank. I am sure that their work will help to develop the region and will also help to make the global financial system stronger and more stable.

At the national level, Russia continues its efforts to create the most comfortable business climate. Our efforts have received international appraisal and over the last 4 years, Russia has moved up 69 points in the World Bank's Doing Business rating, from 120th place to 51stplace.

We place great importance on developing the potential of Russia's Far East. This year, we began developing the priority development areas – economic zones offering what for Russia are unprecedented tax and other incentives. A special law was passed on a free port in Vladivostok. We plan to extend this status to other key ports in the Far East. The Far East ports, the Northern Sea Route, and modernization of our mainline railways will all contribute to greater integration with the Asia-Pacific region and create an important infrastructure link between the Asia-Pacific region and Europe.

APEC countries are showing real interest too in Russia's proposals to form a common education space in the region. Today, when the Asia-Pacific region has established itself ever more solidly as part of the world's leading technology centres, it is more relevant than ever to combine our efforts to create big research platforms and centres. Recognizing Russia's sense of initiative in this area, our partners have entrusted our country, together with Peru, the right to preside over the APEC Education Ministerial Meeting, which will take place in Lima in 2016.

We need to put in place the institutions and rules that will contribute to development and create new opportunities for our countries' businesspeople to create modern, promising products and high quality jobs.

Rapid economic growth is not possible without guaranteed energy security in the APEC region and fair and long-term climate regulation. Russia supports APEC's efforts to establish good conditions for investing in the regional energy transport system, develop integrated energy markets, increase the share of eco-friendly and renewable energy sources, and ensure access to low-carbon technologies.

The Paris Climate Change Conference will take place soon, in December. This conference will try to reach a global agreement on reducing greenhouse gas emissions. Russia wants to see this work succeed and we have already presented our report on our country's contribution to these efforts.

The scale and diversity of APEC's tasks is very impressive. I believe that we will be successful in resolving these tasks if we keep to the fundamental principles of working together as partners and acting in the interests of our peoples and our efforts to create a united Asia-Pacific family.

/RA&MG/

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RUSSIAN AIRCRAFT

Briefing the Russian Defence Ministry spokesman concerning activities of Rus aircraft in the Syrian Arab Republic

First of all, it is to be reminded that the Russian Federation had conducted an observation flight over the territory of the Turkish Republic on February 1-5, 2016 in accordance with the Treaty on Open Skies. A preliminary approval for the flight had been received from the Turkish party within the time limits prescribed by the Treaty.

Yesterday a group of Russian observers arrived at the Turkish airport Eskisehir and submitted the route of the observation flight to Turkish representatives as it's required under the Treaty.

However, the Turkish Defense Ministry officials refused the Russian specialists to perform the observation flight over the areas adjacent to Syria, as well as over the airfields with concentrations of NATO aviation and without any specific explanation at that.

Official NATO and Pentagon representatives who are always stand in solidarity with Turkey are to be reminded about something.

Last year Western countries conducted 32 observation flights over the Russian territory on the routes designated by them within the Treaty on Open Skies

Turkey conducted 4 of them, including 2 – together with US military officials.

No remarks or complaints about the illegal military activities of the Russian Federation were registered.

Ministry of Defence of the Russian Federation does not intend to leave without proper attention and response the violation of the Treaty by the Turkish party.

Such steps made by a NATO member-state do not contribute to the security and confidence-building in Europe.

The Russian Defence Ministry regards these actions of the Turkish party as a dangerous precedent and an attempt to hide the illegal military activity near the Syrian border. Moreover, The Russian party has reasonable grounds to suspect intensive preparation of Turkey for a military invasion to the territory of a sovereign state – the Syrian Arab Republic.

The Russian Defence Ministry has presented to the international community the incontrovertible video evidence which shows the Turkish self-propelled artillery shelling the Syrian inhabited areas in the north of Latakia.

It is surprising that the eloquent Pentagon and NATO representatives as well as numerous Human Rights Organizations in Syria still remain

silent about that despite our call to respond to those actions.

Moreover, the Russian Defence Ministry registers a growing number of signs of hidden preparation of the Turkish Armed Forces for active actions on the territory of Syria.

It is to be reminded that the Russian Defence Ministry has intensified all kinds of intelligence in the Middle East region.

That's why, if someone in Ankara thinks that the prohibition of Russian observer flight allows to hide something, it is unprofessional.

The Defence Ministry is to demonstrate another fact of provocative actions by Turkey on the border with Syria.

Here is an image of checkpoint on the Turkish-Syrian border near Sarmada – Reyhanli.

Terrorists, who captured Aleppo and Idlib in the north-west of Syria, are supplied with weapons and militants through this checkpoint from the territory of Turkey mainly at night.

American and NATO-counterparts like to name these transport caravans with weapons for terrorists as "humanitarian convoys".

Journalists are just thrown in jail for trying to find out what is transported in these convoys in Turkey itself.

The attention is to be paid to the first frame, dated October 26, 2015: there is a parking for heavy trucks and two small platforms on the Turkish and terrorists-controlled Syrian border side, which are generally empty during the day.

Here is a second picture taken on January 30: someone has actively extended these platforms and even put them under protection. Moreover, the coverage of these platforms is very trampled.

Maybe, in peace-time, these facts would indicate the expectation of trade turnover growth between the neighbouring countries.

However, during war-time, in such a way the transport infrastructure is preparing on the eve of military intervention. And such platforms are used for supporting the rapid movement of military convoys carrying ammunition and weapons in the war zone, as well as for operational personnel deployment and evacuation.

There are a lot of such examples on the Turkish-Syrian border, and especially since the presence of troops and military equipment.

So, the prohibition of our observers' flights by Ankara will not hide the illegal Turkish military activity in the region.

In the course of the last three days, on February 1-4, aircraft of the Russian Aerospace Forces have performed 237 combat sorties engaging 875 terrorists' objects in the Aleppo, Latakia, Homs, Hama and Deir ez-Zor provinces.

As the result of the activities of the Russian aviation, terrorists are suffering significant losses.

At the same time yesterday the Syrian Arab Army jointly with volunteer forces dislodged militants from positions and liberated the settlements of Nubul and Al-Zahraa besieged for over 4 years.

Now leaders of illegal armed groups have to concentrate on evacuation of injured militants and to regain control over the situation. In the north of the country, the militants continue leaving their positions and retreating to the Syrian-Turkish border in order to keep the combat capability of their formations.

According to the data received from representatives of the Syrian opposition, Jabhat al-Nusra Front and Harakat Ahrar ash-Sham militants have organized a unit of teenagers who had finished a special training courses in the Idlib province.

The oldest "cadet" is only 16 years old and the youngest is 14. This unit is designed to be involved in terrorist attacks against civilians in Damascus, Homs and Latakia provinces.

It's necessary to stress that absurd allegations concerning alleged strikes of the Russian aircraft in the territories which had no sign of presence of the ISIS terrorists are now being disseminated again.

These are mostly referring to the targets outside Raqqah, where the aircraft of the so-called anti-ISIS coalition supposedly do not conduct operations.

Especially for those critics it is mentioned that throughout the first 3 days of this February,12 heavy bombing missions have been conducted by coalition forces in Aleppo, Homs, Raqqah, Hasekeh, and Deir ez-Zor provinces.

Official representatives of the anti-ISIS coalition states are invited to inform the media concerning the results of this work. Especially concerning the Syrian inhabited areas.

Just a couple minutes ago another Turkey representative claimed to share the materials on alleged violation of Turkish air space by a Russian aircraft.

Currently no data has been received via military or diplomatic channels.

Please be noticed that this is not the first fake report on that topic from the Turkish representatives. **/RA&MG/**

From Ministry of Defence of Russian Federation

ASIAN INFRASTRUCTURE INVESTMENT BANK

Russia united with several countries in the Asian Infrastructure Investment Bank (AIIB) Board of Directors for voices distribution. "Russia is not the only country that has done it," — noted Minister of Economic Development of Russia Alexey Ulyukaev appointed as a Governor from Russia in AIIB. "It is a normal practice. The countries are united into groups. The same thing is in the World Bank and in the EBRD when our country is united with others."

According to the Minister not all the states have completed domestic procedures. That is why the group in which Russia is included has not been created yet formally. Nevertheless, four states are ready to join it: besides Russia Kazakhstan, Iran and Tajikistan. "This group will consolidate the second largest package, about 13% that will allow the group to influence management decisions since the basic decision is taken according to the amount of shares controlled," noted Russian Minister.

He believes that AIIB will begin to consider the first applications in the second quarter. "The management assured us that all organizational procedures would be completed in the first quarter and AIIB would be ready to consider projects," Alexey Ulyukaev said.

However he thinks that it is early to talk about funding any Russian projects. "But it is obviously that it will be infrastructural projects connected with highway and railway construction. We would like to work with the projects that we, China and EEU are interested in," explained Minister of Economic Development of Russia.

According to his words the specialists are working at combining two integration projects: EEU and Silk Road Economic Belt. It is quite reasonable that these infrastructural projects will be considered.

Besides this entails energy facilities of Russian Far East and Siberia. "By the time the Bank begins to consider the projects we shall have prepared the package," said Minister of Economic Development of Russia and noted that our country had all opportunities to be among the first ones that would begin working with AIIB. However in Alexey Ulyukaev's opinion, it is early to talk about the conditions under which the Bank will provide loans.

Articles of Agreement of setting up Asian Infrastructure Investment Bank officially came into force on December 25, 2015. Russia has duly completed ratification procedures related to constituent documents of the Bank that allow the country to participate in full format in inauguration meetings of AIIB Board of Governors and the Board of Directors.

Alexey Ulyukaev has drew attention to the fact that the Bank is one of the sources of infrastructure finance and practical example of cooperation in Asia-Pacific region. As he said, "it is one of the system decisions that positively affect renovation of the regional economic infrastructure".

Founders of Asian Infrastructure Investment Bank are 57 countries; of them 37 are referred to the regional member states and 20 – to the non-regional ones. Russia became third by size stockholder of AIIB with stake in its capital equal to 6.54% (after China and India).

Besides, today has took place the official appointment of the Bank's President Tsing Lutsun. As said the head of the Ministry of Economic Development of the Russian Federation, "He is the former Chinese Deputy Minister of Finance; previously he worked in the World Bank and is well known in financial community. We hope that he would manage to properly arrange the Bank's activity".

During the inauguration meeting discussed were the issues related to the framework working documents outlining operation of Board of Governors and election of the Board of Directors. Further on shall be authorized the relevant internal documents that would allow the Bank to proceed to operation.

As noted Alexey Ulyukaev, "to commence the project work, this organizational stage is envisaged to be completed within the first quarter".

He has noted that AIIB shall create the three-level management system including Board of Governors, Board of Directors and the relevant executive bodies. As he explained, "the Board of Governors shall be in charge of taking principal decisions regarding Bank's development strategy and its charter documents, whereas the direct authorization of project shall be done by the Board of Directors".

Results of voting by candidates to hold positions in the Board of Directors shall be officially released tomorrow. As Alexey Ulyukaev explained, "I wouldn't open a great secret if I say that the Board of Directors shall include one representative of Russia, i.e. executive of the Russian Ministry of Finance Timur Maximov. He is nominated to hold position of director from Russia. As distinguished from the other international organizations such as World Bank and European Bank of Reconstruction and Development, the director position in AIIB is not presuming the full employment". /RA&MG/

RUSSIAN EXPORT CENTER

At present, Russian economic policy measures are more focused on the development of full-cycle local production and production with high added value. Speaking at the recent session of the State Council devoted to import substitution held in Nizhniy Tagil President of Russia Vladimir Putin noted: "The goal is not to substitute the imported goods with domestically produced ones in one way or another. Support should be provided to projects able to compete with foreign analogues on equal terms – both by quality, and by price"

The sales appeal on the world market is one of the key factors of long-term economic growth. But competition on foreign markets is not just a comparison of price and qualitative characteristics – it is also a competition of export support systems, which governments offer to non-raw-materials exporters.

Today, many agencies, development institutions and organizations – Ministry of Economy, Ministry of Industry and Trade, Finance Ministry, FAS, FCS, Vnesheconombank and others — are involved in activity aimed at supporting export in Russia. However an exporter lacked a single counterpart who would become a starting point for Russian manufacturers striving to reach the global market. For that reason, the Government of the Russian Federation decided to establish the Russian Export Center (REC) to operate in a single window format to support producers and provide their access to the most complete set of services for supporting export activity.

The Center's range of services development was based on a principle of conformity to the stages of export project life cycle. Otherwise, it is an arrangement of routing and support of requests submitted to governmental structures, rendering organizational and consulting, training and informing, and financial services. The basic idea of the Center is to combine the state opportunities with the cli-

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>
> *(Vladimir PUTIN)*

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ent-oriented business approach. Such approach will promote creation of favorable environment for the development of Russian export. The Center has already started to work both with experienced and with starting exporters independently on their volume and industrial specialization.

The financial block of REC is represented by the tools of Vnesheconombank Group. In the nearest future, RECIIA and Roseximbank will be moved under REC corporate management and thus the financial "wing" of support is to be created. Integration of REC, RECIIA and Roseximbank will help, first of all, to exclude duplication of functions, secondly, to reduce the volume of document circulation, and thirdly, to save the time of all participants of export activity. In order to establish efficient interaction of REC with RECIIA and Roseximbank, a special end-to-end business process will be arranged, while all the clients who have addressed REC, RECIIA and Roseximbank, will be included into an integrated client base.

In order to implement non-financial measures of rendering assistance to exporters, the Center will cooperate with partners and service providers in the key spheres of interaction. A model of obtaining the state support and the scheme of payment for services rendered through outsourcing will be developed. Potential spheres of interaction shall be: protection of intellectual property, legal support (including abroad), and logistics. Skolkovo Foundation, RBC and the Scientific and Technological Valley of the Moscow State University could be potential partners of the Center.

In spite of the fact that REC operates for only few months, it has already succeeded to buildup a portfolio of more than 100 projects in automotive, agricultural, aviation, mechanical engineering sectors, the sectors of nanotechnologies and microelectronics, etc.

The Russian Export Center has chosen a way of direct communications with business. Meetings with representatives of industrial organizations and individual exporters are arranged on a regular basis. One of REC's goals is the accumulation of market information and transmitting business urgent requests to governmental structures. In order to find the most demanded requests it is planned to arrange regular quantitative and qualitative assessment of export environment. The first research project is devoted to the transportation and logistics sphere of export activity. REC engages the widest possible audience of businessmen in its studies, which allows it to involve, on the one hand, new clients to work with REC, and on the other hand, to use the accumulated base to continue research in the future. Such an approach, together with regularly arranged studies, helps to monitor the dynamics of export support system development, and to obtain digital data of the results of work of all federal executive authorities involved in the support of export, and to elaborate recommendations for their further works in this sphere.

Besides, REC plans to carry out active educational activity. Thus, the first major educational project of the Russian Export Center will start in spring of 2016. It is not just a plan of regional seminars or a series of webinars, but it is a full-fledged systemic software product, which will include two key opportunities for the regions:

- Opportunity for starting exporters to obtain knowledge needed to start their export activity.
- Opportunity of professional development for employees engaged in regional infrastructure of export support.

Mini-MBA format was chosen for the program, which stipulates a practice-focused approach. Advisers competent in various spheres are engaged to develop and implement the programs, which gives an opportunity to create a really high-quality educational product. Training will be arranged in the full-time and remote modes, which will help to cover many regions within a short time period. Currently the Center is selecting pilot regions for the project approbation.

The urgency of the educational project was stipulated by the fact that one of the main challenges the enterprises faced in their export activity was the lack of knowledge in the field of foreign trade activities – it was especially true for the regional companies. Regular surveys of businessmen confirmed high demand for and motivation to training. **/RA&MG/**

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MILITARY AND TECHNICAL COOPERATION

Russia remains one of the world's top defense products suppliers

Since 2000, the Russian Federation has established a sufficiently effective system to manage military-technical cooperation between the Russian Federation and foreign states, incorporating the Federal Service for Military-Technical Cooperation ("FSMTC of Russia") as its critical enabler. The Federal Service for Military-Technical Cooperation is empowered with control and supervision functions in the MTC area. FSMTC of Russia shall be a decision making authority on import to and export from the Russian Federation of military purpose products as decreed by the President of the Russian Federation, also in the established manner and as authorized by the Russian Federation President, issue of licenses to military-technical cooperation-affiliated entities for import to and export from the Russian Federation of military purpose products;

"FSMTC of Russia" granting in the established manner foreign trade licenses to (from) corporate developers and manufacturers of military-purpose products and arranging exhibitions and shows of specimens of military purpose products in the Russian Federation and foreign states as required by the Government of the Russian Federation; and in the established manner and as required by competent authorities of foreign states, issue of end user's certificates for import military purpose products to corporate developers and manufactures of military purpose products.

For example, on the conference on summarizing of the results of advertising and exhibition activity in the area of military-technical cooperation of the Russian Federation with foreign countries in 2015 and activity planning for 2016 with participation of representatives of the interested federal executive authorities, military-technical cooperation affiliated entities and other Russian organizations was held on December FSMTC of Russia presented the departmental awards to the most active participants of the advertising and exhibition activity in the area of military-technical cooperation. Among the award recipients were the representatives of the Ministry of Defence of the Russian Federation, the Ministry of Internal Affairs of the Russian Federation, the Federal Service for Technical and Export Control, State Corporation «Rostec», JSC «Rosoboronexport», JSC «UAC», «Almaz-Antey» Corp., JSC «Russian Helicopters», JSC «RPC «Uralvagonzavod», JSC «SPA «Bazalt», JSC «KBP», FSUE «Gamma Scientific and Production Enterprise», JSC «Exhibition Companies Group «Bizon», company «International Congresses and Expositions».

Military and technical cooperation between Russia and pacific region states is on the rise now. Pacific region nations account for considerable part of Russian defense products delivery. This number may quite possibly rise significantly. Besides, seeing the growing interest toward aviation and air defense equipment, we hope for stepping up of cooperation in this regard. Russian planes and helicopters have proven themselves highly efficient during large-scale counter-terrorism operations worldwide. Their air superiority and anti-ground high-precision strikes capabilities are also well known to our partners in other states. Among others, in this region large export potential belongs to gunships and transport helicopters, various air defense systems, antiaircraft gun and missile system.

From recent examples of successful participation the equipment in the international exhibitions can remember a little. So, Russia takes part in the arms exhibition in Gulf Defence & Aerospace 2015, an international exhibition of arms and military equipment to be held from 8 to 10 December in Kuwait City (Kuwait). "Rosoboronexport seeks to intensify cooperation with the Gulf countries, which are interested in strengthening their armed forces. Russia has deservedly earned recognition as a reliable and independent partner while Russian weapons have proven their effectiveness and reliability in challenging combat and climatic conditions.

Major areas of FSMTC of Russia activities shall be:

— To perform control and supervision functions in the area of military-technical cooperation in compliance with laws of the Russian Federation;

— To participate jointly with other federal government authorities in elaboration of state policy in the area of military-technical cooperation and submit in the established manner relevant proposals to the President of the Russian Federation, the Government of the Russian Federation, and Defense Ministry of the Russian Federation;

— To ensure jointly with other federal government authorities implementation of key state policy guidelines in the area of military-technical cooperation as set by the President of the Russian Federation; and Within its competence and jointly with other federal government authorities, to implement state regulations in the area of military-technical cooperation.

The participation in the exhibition in Kuwait is another step to strengthen our position in the region," said Rosoboronexport Deputy Director General Sergey Goreslavsky, who heads the Company's delegation at the exhibition.

The Gulf states are showing interest in Russia's army, air force and air defense weaponry. In addition, Rosoboronexport promotes naval equipment here such as patrol boats, frigates, and coastal missile systems. The foreign delegations are expected to pay more attention to the T-90MS MBT, TOS-1A heavy flamethrower system, Typhoon-K MRAP vehicle, Kornet-EM ATGM system, Su-35 and MiG-29M/M2 fighters, Ka-52, Mi-28NE and Mi-35M attack helicopters, Mi-17 and Mi-26T2 transport helicopters, Yak-130 combat training aircraft, Il-76MD-90A military transport aircraft, as well as air defense weapons of various classes, including the Antey-2500 and S-400 long-range air defense missile systems, Buk-M2E medium-range SAM system, Pantsir-S1 air defense missile/gun system and Igla-S MANPADS.

At Gulf Defence & Aerospace 2015, Rosoboronexport talked with the representatives of the armed forces

of the countries from the Middle East and other regions over the prospects for expanding military-technical cooperation.

The Russian delegation also included JSC NPO Splav (part of JSC NPO Tehmash) and JSC High-Precision Systems (Vysokotochnye Kompleksy) represented by JSC Shipunov KBP Instrument Design Bureau, JSC Tula Arms Plant, JSC Kovrov Electromechanical Plant, JSC VNII Signal Research Institute and JSC Nudelman Precision Engineering Design Bureau (KBtochmash)

Military and technical cooperation with the region's nations tends to increase both in terms of quality and quantity. Thus, recently FSMTC of Russia experts have participated in 'DUBAI AIRSHOW-2015' international airspace exhibition held on November 8-12, 2015 in Dubai (United Arab Emirates). Russia has been an exhibitor at 'DUBAI AIRSHOW' since 1993. The Russian display area this year has been 678 square meters. The exposition involved 23 Russian enterprises including the largest ones like 'Rostech' State Corporation,

In conformity with laws of the Russian Federation, FSMTC of Russia shall perform control and supervision functions relating to:

— Compliance, of activities in the field of military-technical cooperation of federal government authorities, government authorities of the Russian Federation constituencies, and Russian organizations empowered in the established manner to carry out foreign trade activities regarding military purpose products, corporate developers and manufacturers of military purpose products, other legal entities, officials and individuals, with legal acts and regulations of the Russian Federation and key state policy guidelines in the field of military-technical cooperation, requirements of the Russian Federation laws on export control over procurement of military purpose products;

— Implementation of underlying state policy principles in the field of military-technical cooperation including state monopoly;

— Efficient functioning of state regulatory system in the field of military-technical cooperation;

— Fulfillment of international treaties of the Russian Federation in the field of military-technical cooperation;

— Activities in the field of military-technical cooperation of representative offices of military-technical cooperation–affiliated entities in the Russian Federation and foreign states, as well as those of other organizations;

— Marketing, advertising, and exhibition activities in the field of military-technical cooperation;

— Efficient application of funds allocated from the federal budget to finance activities in the field of military-technical cooperation, as well as efficient use of federal property by military-technical cooperation–affiliated entities;

— Level of foreign trade prices for export and import military purpose products with due regard to protection of economic interests of the Russian Federation;

— Level of local prices for military purpose products to be funded out of the federal budget, and supplied to foreign customers under international treaties of the Russian Federation.

'Rosoboronexport', 'Almaz Antei', Russian aircraft Corporation MiG, 'Sukhoi', 'Vertoley Rossii' (Russian Helicopters). Altogether about 200 samples of Russian advanced defense products have been shown in Dubai.

During the exhibition Russia has held negotiations with delegations of UAE, Kuwait, India, RSA, Malaysia, Bahrain, Egypt, Iraq, Indonesia, Jordan, Oman and other countries. They discussed prospects for Russian armament supply including aircraft, air weapons and air defense equipment as well as issues of creating maintenance facilities and establishing after-sale service.

Russia considers Kuwait to be among the most signficant partners as to military and technical cooperation in this region and in whole Asia. Military and technical cooperation between our two countries goes deep. It began in 1978 and advanced in a rather active manner. Thus, back then our country provided Kuwait with about 700 'Strela' portable anti-aircraft missile systems and twenty 'Osa' air defense missile systems.

Extending cooperation between Russia and Kuwait is spoken by the Memorandum of military and technical cooperation between 'Rosoboronexport' and Defense Ministry of Kuwait undersigned in November this year, which shows Kuwait military's profound interest towards purchasing Russian military equipment. In particular, Kuwait is interested in Russian battle aircraft and air defense systems. More details of types and purchases will go public later. So far only growing interest can be observed. Besides, much attention has been paid to creation of heavy infantry fighting vehicle (IFV) based on Enigma IFV developed by UAE and Russian AU-220M weapon station equipped with 57mm gun.

In this year at the Bahrain International Airshow 2016 (January 21-23) many countries displayed an interest in buying Russian aircraft, helicopters and air weapons. The Su-35 and MiG-29M/M2 multirole fighters, Yak-130 combat trainer, Il-76MD-90A military transport, Ka-52 and Mi-28NE attack helicopters, Mi-35M transport/attack helicopter, and Mi-17 type military transport helicopters have great export potential in the region.

"Rosoboronexport's order portfolio for aviation equipment exceeds currently $22 billion. Interest from foreign customers, including the Middle East and North Africa, is growing. This stems from both launching new aircraft models to the international market and high operational effectiveness of modern Russian military aircraft, including its capabilities for delivering surgical strikes on ground targets. Demand is supported by an excellent cost-effectiveness ratio and Russia's reputation as a reliable and responsible partner in military-technical cooperation," said Sergey Kornev, Head of Air Force Equipment Export Department, who leads the Rosoboronexport's delegation at the exhibition. At the exhibition, Rosoboronexport showed the open presentation "Russian Military Aircraft Fighting against Terrorism," which analyzes the Russian aircraft's capabilities for use in counter-terrorist operations.

The Bahrain International Airshow has been held since 2010. This year, along with Rosoboronexport, it was attended by Russia's Federal Service for Military-Technical Cooperation, Russian Helicopters and United Aircraft Corporation delegations.

The special story is demanded by a subject of the Russian-Indian relations. The Russian-Indian scientific and technical conference "Effective after sale service – assurance of high operability of arms and military equipment" was held within the International Aviation and Space Salon "MAKS-2015" in Zhukovsky at the House of Scientists TSAGI under the aegis of FSMTC of Russia on August 25, 2015.

A.V.Fomin, the Director of FSMTC of Russia, A.V.Potapov, the Deputy Minister of Industry and Trade of the Russian Federation, representatives of JSC "Rosoboronexport" and leading military-industrial complex enterprises, whose production is in demand at Indian arms market, took part in the conference work from the Russian side.

A.K.Gupta, Secretary (Defence Production) of the Ministry of

Defence of the Republic of India, S.Garg, Joint Secretary (Defence Industry Development) of the Indian Ministry of Defence, representatives of Armed Forces Headquarters (Air Force, Navy, Army), Indian enterprises concerned with operating, maintenance and repair of Russian origin military equipment.

During the Conference, its participants discussed the existing issues in area of after sale service of Russian origin military equipment in India and exchanged opinions about its effectiveness increase. It was proposed to Indian partners a comprehensive approach for maintenance of arms and military equipment during the whole life cycle from delivery to utilization. During the Conference, held in close friendly atmosphere, the representatives of Russian and Indian military-industrial complex established direct contacts and achieved a number of arrangements on improving of maintenance quality of Russian origin arms and military equipment.

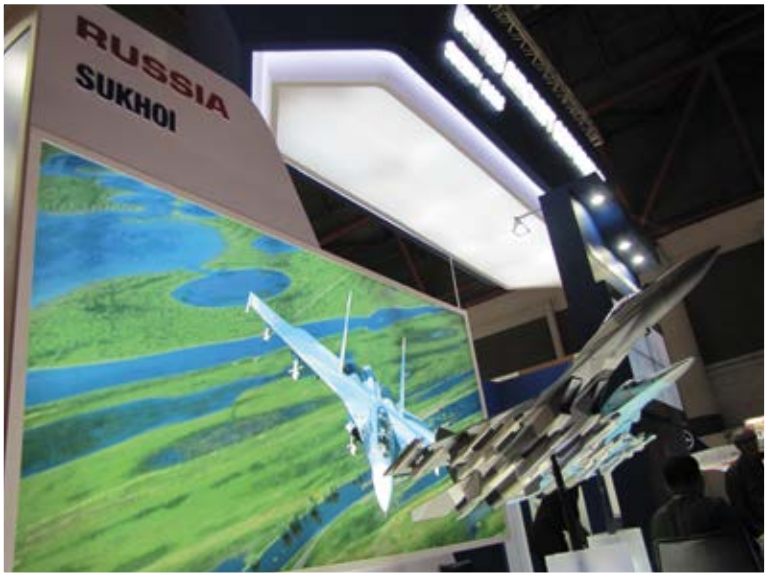
In his interview for Russian Industrial Weekly newspaper Alexander Fomin, the Director of FSMTC of Russia has described the extent to which the current stage of military and technical cooperation with other countries is significant. Among other things he said the following.

"Today the situation of world armament and military equipment market depends on many factors. These are ongoing global economic crisis, complex military and political situation in Middle East and North Africa, stepping up of military production competitors which include first of all the USA, Germany and France.

We should recognize stepping up of such armament exporters as China, Republic of Korea, Israel and Turkey as well as entry of new ambitious players like Japan and Republic of South Africa. It is needless to say that development of military and technical cooperation between Russia and other countries is to some extent influenced by so-called 'anti-Russian sanctions'. Nevertheless, Russia is still one of the largest global defense suppliers and it is keeping intensive military and technical cooperation underway.

Indian Air Force and Navy are armed with many Russian (Soviet) aviation equipment such as Su-30MKI, MiG-21, MiG-23, MiG-29 ground and ship-based fighters, Il-76 transport aircraft and Il-78 tankers, naval Tu-142M and Il-38, Mi-17, Mi-26, Ka-28 and Ka-31 helicopters. The mentioned aircraft are going to be used by Air Force and Navy of India for next decades and should be constantly maintained by Russia.

Nowadays India is much interested in establishing production of Ka-226T helicopters in India. There are negotiations underway as to cooperation conditions under this project. There is a possibility of additional lots of Mi-17V-5 helicopters to be delivered and increasing the number of Su-30MKI planes being produced under license in India. All



this makes us enthusiastic in Russian and Indian cooperation in terms of battle aircraft.

Main areas of cooperation with Malaysia in this regard include after-sale service of Su-30MKM aircraft. In 2012 a maintenance facility was established under the delivery contract. Besides, there are efforts to promote additional lot of Su-30MKM's to Malaysian market. Currently Malaysia is considering proposals for upgrading MiG-29 planes delivered before.

Military and technical cooperation between Russia and China as to battle aircraft is also promising".

Answering the question of joint defense production to be established by Russia in partner countries, Director of FSVTS emphasized as follows:

"Decisions to establish joint defense-oriented enterprises are made by the President of the Russian Federation and the Government of the Russian Federation. Our Federal Service is responsible for implementing the mentioned decisions and monitoring.

In this regard I would like to state that while the decision to establish a joint enterprise is being prepared, the issue is to be addressed comprehensively in all departments and agencies including FSMTC of Russia, Russian Defense Ministry, and Ministry of Foreign Affairs, Ministry of Industry and Trade and other agencies in order to avoid losses for the Russian Federation. Besides, all factors like political, economic, military and technological ones should be taken into account. Targeted decisions are made as to each separate joint enterprise. Joint development and production are cross-pollinating and allow consolidating and developing technological potential of Russia as well as facilitate future innovation-driven growth".

Nowadays, promotional and exhibition activity is becoming one of the most important mechanisms of strengthening political and economic positions of states-exporters of arms to different regions of the world and also a set of actions effi-

ciently assisting in innovative development of economy, primarily, of all the military-industrial complex, manufacturing of competitive goods through attracting investments and new technologies.

From 2000 till 2010 FSMTC of Russia in association with the concerned federal bodies of the executive branch had created a harmonic and effective system of exhibitions regarding military purpose products (further – MPP) in the Russian Federation. This system was based on 3 nationwide exhibitions, held in the Central Region of Russia and covering principal areas in the field of production of arms and military equipment:

The International Aviation and Space Salon MAKS held starting from 1992 in odd-numbered years at the grounds of FSUE Flight Research Institute named after M.M.Gromov in Zhukovsky, Moscow Oblast;

The International Maritime Defense Show IMDS held starting from 2003 at Lenexpo Exhibition Complex in St.-Petersburg;

The International Show of Weapons and Military Equipment MVSV organized since 2004 in Moscow, which in 2010 has become the core exhibition within the International Forum "Engineering Technologies" held at the grounds of JSC "TVK "Russia" in Zhukovsky, Moscow Oblast.

The International Exhibition of Arms, Military Equipment and Ammunition "Russian exhibition of arms. Nizhny Tagil" at the grounds of the State Exhibition Centre of FSE Nizhny Tagil Institute of Metal Testing held in odd-numbered years is an attractive show and a salon of significant interest for foreign customers and partners. The pivotal and obvious advantage of this event is a unique test range which makes it possible to showcase in action a great deal of arms and large-sized samples of military hardware of the Land Forces.

The exhibitions organized in the Russian Federation proactively assist in promoting military-technical cooperation of the Russian Federation with foreign states and strengthening political and economic stands of Russia in various regions of the world. /RA&MG/

FSMTC of Russia shall:

• Submit in the established manner draft decisions of the President of the Russian Federation and the Government of the Russian Federation on deliveries of military purpose products to foreign customers, as well as on other foreign trade issues relating to military purpose products;

• Develop jointly with federal government stakeholders conceptual approaches for higher MTC efficiency, as well as review trends in the development of the world's market of military purpose products;

• elaborate jointly with federal government stakeholders draft international treaties of the Russian Federation in the field of MTC and submit in the established manner proposals for concluding and implementation of any such treaties;

• Elaborate and submit in the established manner proposals for working out a state defense order regarding export and import military materiel under international treaties of the Russian Federation;

• make analysis of effective long-term international treaties of the Russian Federation providing for export military materiel adjusted for mutual debts, ability to settle them through goods exchange, and, if necessary, submit in the established manner relevant proposals;

• participate jointly with federal government stakeholders in drafting proposals for establishment, suspension, termination and resumption of MTC;

• submit in the established manner proposals for creating, composition and arranging activities of bilateral and multilateral intergovernmental commissions relating to MTC;

• set up relationships in the established manner with international organizations relating to MTC;

• be in charge of Russian sections of intergovernmental commissions relating to MTC as instructed by the President of the Russian Federation and the Government of the Russian Federation;

• review orders of foreign customers for supplies of military purpose products, record them, appoint contractors among MTC-affiliated entities, agree with federal government authorities on contractors among corporate developers and manufacturers of military purpose products contracted for supplies of the said products, inform foreign customers on accepting their orders for consideration, and supervise preparation and approval of relevant draft decisions, monitor progress of implementation of orders of foreign customers for supplies of military purpose products by MTC-affiliated entities;

• maintain record of orders of foreign customers for supplies of military purpose products placed directly with MTC-affiliated entities, and monitor progress of their implementation;

• streamline and supervise activities of MTC-affiliated entities, review and summarize results of their activities;

• maintain the register of MTC-affiliated entities and issue to them appropriate certificates;

• maintain record and registration, approve contracts for foreign trade activities relating to military purpose products, as well as maintain control of implementation of those contracts;

• if necessary, participate in talks conducted by MTC-affiliated entities with foreign customers for supplies of military purpose products;

• submit in the established manner proposals for implementation of key objectives and performance of functions of representative offices of the Russian Federation in foreign states regarding MTC;

• make proposals in the established manner for empowering corporate developers and manufacturers of military purpose products to carry out foreign trade activities and revoke the same from them;

• arrange exhibitions and shows of specimens of military purpose products in the Russian Federation and foreign countries as required by the Government of the Russian Federation;

• participate in working out proposals for MTC development with CIS-member states, and draft international treaties with those states on MTC issues;

• maintain relationships with authorized authorities of CIS-member states relating to export of military purpose products to third countries;

• take interdepartmental joint efforts relating to supplies and control over intended use of military purpose products under the Agreement of MTC Fundamental Principles dated 15 May 1992 between member states of the Organization of the Collective Security Treaty;

• maintain record of man-portable air defense systems sold and acquired by CIS-member states and promptly notify stakeholder states and international organizations of man-portable air defense systems sold and acquired by the Russian Federation;

• elaborate a consolidated volume of export military purpose products for the next year and control its performance;

• sponsor research and development of MTC-related works including its information coverage;

• streamline specialty retraining and skill enhancement system for staff involved in MTC;

• communicate to foreign customers scheduled phase-out of spare parts, plants, units, devices, and completing articles, specialty, training, and support materiel required for operability of earlier supplied military purpose products, as well as report about results of such communications to MTC-affiliated entities; and perform as state customer for export and import operations in the field of MTC to be carried out under international treaties of the Russian Federation, as well as customer for research and development works on MTC information coverage.

Vladimir Maximovsky

ROSCOSMOS
STATE CORPORATION FOR SPACE ACTIVITIES

Among the priority tasks of Roscosmos is cooperation with other countries related to study and use of space. Roscosmos develops bilateral and multilateral international political, economic, science and technical as well as legal collaboration. The Agency is internationally involved in fundamental space studies, satellite observations, global satellite navigation systems, earth remote sensing, use of space operating results and so on.

Roscosmos keeps on cooperating with its partners in terms of space exploration despite the challenging geopolitical environment. Russian space industry reform has not and will not influence obligations being fulfilled by Russia concerning international space cooperation including such of International Space Station (ISS) program and delivery of rocket engines to the USA.

Focus areas

Russia has concluded peaceful space study and use agreements with such countries as the USA, European states, China, India, Brazil, RSA and others as well as European and US space agencies (ESA and NASA) and other bodies.

Among the priority focus areas is carrying of foreign spacecraft by Russian launch vehicles with joint enterprises also involved for international marketing purposes. In this regard Russia has an obvious priority by making the major part of international commercial space launches.

It goes without saying that International Space Station Program is the current biggest international space project being implemented by Russia, the USA, European Space Agency members, Japan and Canada. Thus far the station cannot be reached without our launch vehicles since Russia is the only state to have spacecraft capable

of delivering cosmonauts and astronauts into orbit.

Last year it was agreed in principle to extend ISS operation till 2024, to develop station-based scientific and technical experimental procedures and make their outcomes available for all 15 ISS member states. It is going to ensure making many scientific experiments, the outcome of which will be further possibly used during training for long-term flights, to the Moon or Mars, for example.

The works over Center Spatial Guyanais-based Russian and European 'Soyuz' project are still under way now. The improved medium capacity vehicle 'Soyuz-ST' was launched for the first time from Kourou Space Center in October 2011. As of September 2015 12 such vehicles have been successfully launched from this center.

The very important area of Roscosmos international activity is Russian GLONASS positioning system-related cooperation with a number of foreign partners.

To accomplish tasks assigned Roscosmos along with other involved government authorities is engaged in developing and approving draft agreements with other countries with regard to various areas of space activity as well as implementing projects involving international bodies and associations (APEC, ASEAN, BRICS).

Roscosmos is fully engaged in the activities of UN Committee on Peaceful Uses of Outer Space (UNCOPUOUS), its scientific and technical and legal subcommittees, Inter Agencies Space Debris Coordination Committee (IADS), Committee on Space Research (COSPAR), Space Agency Forum, Committee on Earth Observation Satellites (CEOS), International Astronautical Congress (IAC), International Charter on Space and Major Disasters as well as other bodies.

The current situation is that manned cosmonautics and outer space research may be performed on the basis of extended international cooperation. Russia cannot be avoided in such projects.

Last Year Events

Quite recently, at the end of January, European Space Agency, NASA and Roscosmos discussed the opportunities of would-be International Lunar Station. Currently international expert group is working on defining how international space cooperation is to be implemented after ISS shutdown.

Russia has fully carried out its international obligations. 6 foreign spacecraft were launched, 4 space transports and 4 manned spacecraft under ISS-related program were successfully launched too. In 2015 Roscosmos trained four ISS crews.

Khrunichev Space Center subsidiary company International Launch Services and Intelsat, the leading world satellite service provider have undersigned a contract for 'Proton-M' to be launched five times from Baikonur space center till 2023.

NPO Energomash Scientific and Production Association named after academician Glushko and and US RD Amross company have concluded an additional agreement to deliver rocket engines. Up to and including 2019 NPO Energomash is to deliver to the USA 20 more RD-180 engines to be used as part of first stage launcher of Atlas V vehicle.

Roscosmos director general Igor Komarov has held negotiations with director general of French National Center for Space Studies (CNES) Jean-Yves Le Gall. They discussed conditions and opportunities of the bilateral space cooperation includ-

Among the priority focus areas is carrying of foreign spacecraft by Russian launch vehicles with joint enterprises also involved for international marketing purposes. In this regard Russia has an obvious priority by making the major part of international commercial space launches.

Russia has fully carried out its international obligations. 6 foreign spacecraft were launched, 4 space transports and 4 manned spacecraft under ISS-related program were successfully launched too. In 2015 Roscosmos trained four ISS crews.

ing Center Spatial Guyanais-based 'Soyuz-ST' program implementation. We agreed that French experts would be fully engaged in a number of Russian promising scientific and applied programs. Following the negotiations a long-term cooperation declaration of intentions has been signed with regard to space studies. An important event is to be a celebration of 50th anniversary of Russian and French space-related cooperation to be held in 2016.

In September negotiations with the head of Italian Space Agency (ASI) Roberto Battiston were held with regard to development of cooperation related to manned cosmonautics, use of ISS and improvement of European launch vehicle 'Vega'.

The same September there was a meeting with Brazilian Space Agency authorities. The parties intended to develop cooperation in navigation and Earth remote sensing, Brasilia-based land GLONASS stations and perform joint monitoring of space debris. Brasilia has taken a favorable view of our two land GLONASS stations and expressed its interest in increasing their number.

The head of Roscosmos met Ambassador Extraordinary and Plenipotentiary of Republic of Korea, Pak Ro Bek in November. They discussed practical issues of cooperation in creating methane engines, space electronic components and launch facility for new vehicles.

There was a declaration of compatibility and complementarity of GLONASS system and Chinese navigation system BeiDou as well as Memorandum on Cooperation in exchange of data of Earth remote sensing agreed with and signed by China National Space Administration (CNSA).

ExoMars-2016

The preparation of ExoMars-2016 expedition has come to its completion stage. This mission has to be the second largest after Russian and European project involving Kourou-based 'Soyuz-ST' vehicles launches. In the end of December 2015 ExoMars-2016 scientific units, i.e.

Last year it was agreed in principle to extend ISS operation till 2024, to develop station-based scientific and technical experimental procedures and make their outcomes available for all 15 ISS member states. It is going to ensure making many scientific experiments, the outcome of which will be further possibly used during training for long-term flights, to the Moon or Mars, for example.

orbital and demonstration landing modules Schiaparelli were delivered with 'Volga-Dnepr' An-124 aircraft to Baikonur Space Center. 'Proton-M' vehicle is due to be launched in the period from 14 to 25th of March, 2016. The unit will be launched by means of 'Briz-M' upper stage-equipped vehicle. Orbital platform and demonstration module are made by EKA. The orbital module with scientific instruments half of which has been produced by Russia will be engaged in studying trace gases in the atmosphere and water ice distribution in Mars soil.

Roscosmos is fully engaged in the activities of UN Committee on Peaceful Uses of Outer Space (UNCOPUOUS), its scientific and technical and legal subcommittees, Inter Agencies Space Debris Coordination Committee (IADS), Committee on Space Research (COSPAR), Space Agency Forum, Committee on Earth Observation Satellites (CEOS), International Astronautical Congress (IAC), International Charter on Space and Major Disasters as well as other bodies.

GLONASS: BORN IN SIBERIA

The GLONASS global navigation satellite system today represents one of the world's two space systems that provide precise positioning and timing services to users on a continuous worldwide basis.

Satellites intended for the GLONASS system are born in the very heart of Russia – is a small Siberian town called Zheleznogorsk at ISS-Reshetnev Company. It is ISS-Reshetnev that Russian satellite navigation originates from – the company has 50 years' experience designing and building navigation satellites and still remains Russia's only provider of satellites used for navigation and geodetic purposes. The company is home to all Russian navigation satellites, including those that comprise the system's orbital constellation today.

The GLONASS system is the result of a team effort since some work on various components for navigation satellites is subcontracted to a number of Russian cooperating companies. But the main activities such as satellite assembly and testing take place here, at ISS-Reshetnev Company.

The space segment of GLONASS consists of 24 operational satellites. Orbiting the Earth at altitudes of around 19 100 kilometers, these satellites ensure 24/7 navigation signal availability to an unlimited number of users in any weather, day or night, anywhere in the world.

The core of the system's constellation is made up of Glonass-M satellites. This series has been manufactured at ISS-Reshetnev Company for almost 15 years and represents a follow-on version of the first Glonass satellites.

Initially designed for a seven-year active lifespan, some Glonass-M satellites have successfully outlived it to date and continue carrying out their mission in orbit. In view of this, satellites that have already been built by the company now are stored on the ground – so-called ground spares. Currently there are 8 Glonass-M satellites at ISS-Reshetnev facilities (the 9th satellite not long ago was shipped to the Plesetsk cosmodrome, its launch is slated for February 7) and any of them, if needed, can in the shortest possible time augment the orbital constellation. It is also important that when stored on the ground, satellites do not spend their resources.

High reliability of Siberian navigation satellites is based, among other

things, upon a comprehensive series of ground tests that each satellite undergoes at ISS-Reshetnev Company. Satellites are run through multiple electrical, vibration and acoustic tests where certain conditions are simulated – those that satellites encounter during their shipment to the cosmodrome and under the launch vehicle's fairing on their way to orbit. In other words, each satellite is thoroughly prepared on the ground for its long flight mission in orbit.

Positioning accuracy is one of the most crucial characteristics of satellite-based navigation. The main aspect that characterizes the accuracy of the GLONASS system is the real-time positioning error with respect to the State Geocentric Coordinate System obtained using the system's space-based segment only, without correcting data from augmentation systems. As a main contractor under the GLONASS program, ISS-Reshetnev Company works closely with its cooperating companies and Russia's leading research institutions to improve this performance indicator.

During its development, the GLONASS system had its accuracy improved step by step and over the past decade it has seen a tenfold increase. It was achieved through deep modernization of satellites' onboard equipment (for instance, Glonass-M satellites have more stable frequency standards compared to their predecessors – the Glonass series) as well as by applying more comprehensive data processing methods, ephemeris computation and clock error predictions.

In the early 2000s the navigation system based on Glonass satellites delivered positioning accuracy of 28-30 meters. Starting from 2012, when the constellation included only Glonass-M satellites, the accuracy provided solely by the space segment has been at levels of around 2.8 meters.

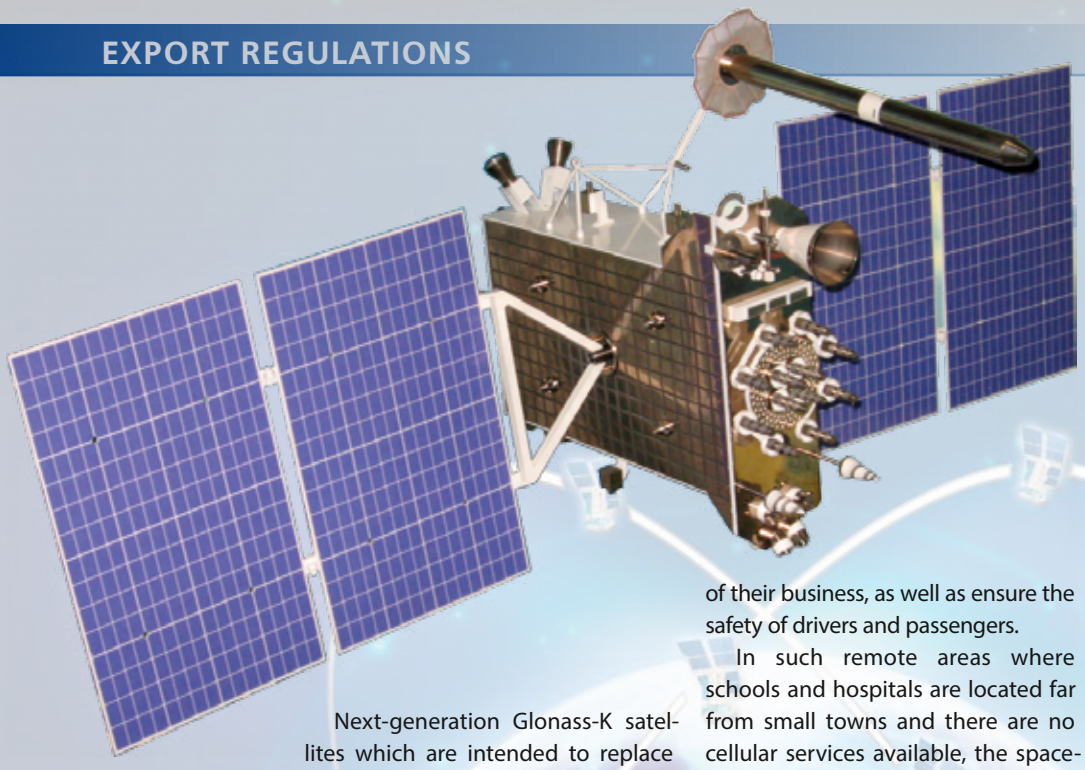
The subsequent accuracy enhancement plan for the GLONASS system will be implemented by modernizing its orbital constellation. Glonass-M satellites which are currently in use will be gradually replaced by more advanced Glonass-K and Glonass-K2 families of satellites with increased technical characteristics and performance capabilities.

Today there are two Glonass-K satellites in orbit undergoing in-flight design testing. Now they feature an additional L3 CDMA (code division multiple access) signal while future satellites are going to have two more CDMA signals.

A combination of CDMA and FDMA (frequency division multiple access) signals available to users and a gradual transition from long-range measurements to phase-based ones will allow to provide more accurate clock and ephemeris information and, consequently, more precise positioning and timing.

Director General Nikolay TESTOYEDOV

Taking into account long-term development prospects of other global navigation systems – GPS, Galileo and Compass, the Russian system GLONASS, having attained these accuracy levels, will remain highly competitive in the global arena.



Next-generation Glonass-K satellites which are intended to replace the currently used Glonass-M satellites (this series of navigation satellites are no longer manufactured), feature an increased 10-year lifespan. As well as that, they have smaller dimensions and reduced weight which makes their launch more cost-effective. Thus, the space segment of the GLONASS system that ISS-Reshetnev Company is responsible for, becomes not only more advanced and functional but also considerably cheaper.

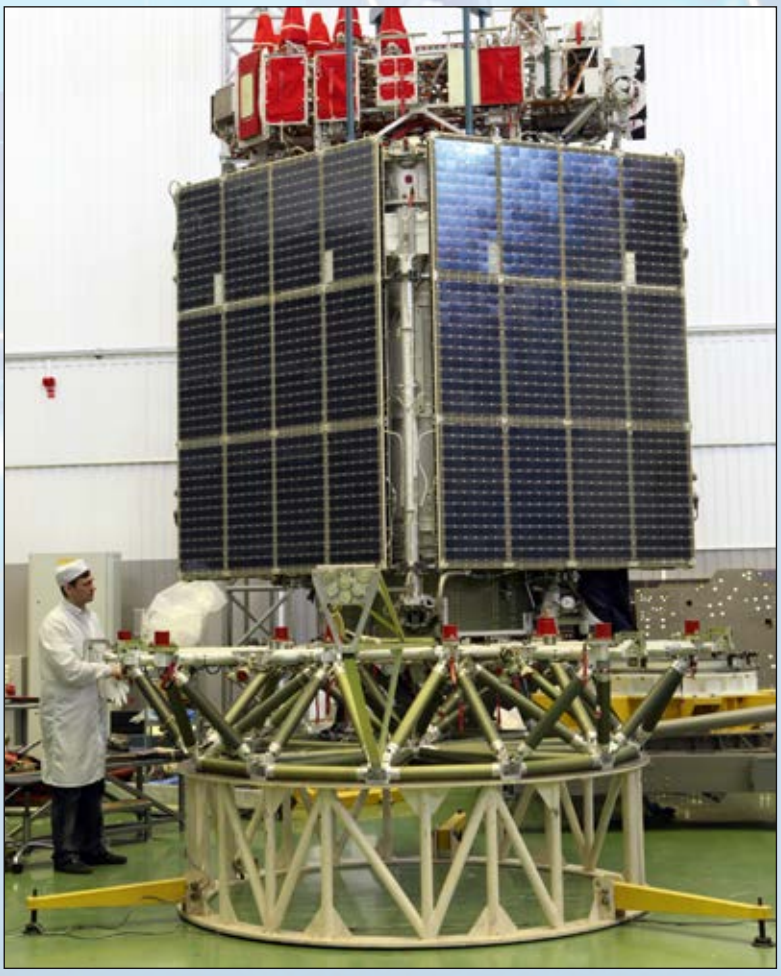
Space-based navigation has many advantages, but the main characteristic it is most valued for is its operational efficiency. That it's why navigation services which were initially intended to be used on sea vessels, today are gaining widespread use and other means of transport can also benefit from them. Applications of navigation technologies are not limited to positioning. For instance, GLONASS signals are also used for vehicle monitoring, route and speed control which can provide significant savings and help companies improve overall efficiency of their business, as well as ensure the safety of drivers and passengers.

In such remote areas where schools and hospitals are located far from small towns and there are no cellular services available, the space-based GLONASS system provides so badly needed connectivity to the world. By pressing an alarm button on the navigation tracking device, drivers can report an accident and aid will not be long in coming.

Earthquakes are natural disasters that are very hard to predict. And navigation satellites play a vital role here – help study seismic activity and other Earth processes. GLONASS signals are used to detect tectonic plates' movement and satellite-based technologies in this case provide a higher degree of accuracy compared to that of ground stations.

Precise coordinate measurement via navigation satellites is also applicable in geodesy – for mapping and cadastral work. In other spheres such as the building industry and engineering, GLONASS working in concert with differential correction systems monitors the status and structural integrity of critical facilities, including dams, bridges, tunnels, etc. giving relevant information concerning their health and the need for additional diagnosis or repair.

Based on ISS-Reshetnev's satellites, Russia's GLONASS navigation system ensures global coverage. It helps solve many critical tasks which include but are not limited to those mentioned above, making lives of millions of people better all around our big world. /RA&MG/



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RESHETNEV
COMPANY

PREMIERE IN DUBAI

United Aircraft Corporation presented its aircraft with Pininfarina interiors at Dubai Airshow in the United Arab Emirates. From 8 to 12 of November, 2015 the demonstration of Sukhoi Superjet 100 took place as a part of Dubai Airshow program. Aircraft with production number 95065 displayed at the Airshow was manufactured for Interjet, a Mexican airline. Interjet now operates 16 SSJ100 aircraft and performed more than 37,000 flights to different cities of Latin America and USA. A firm fixed contract for delivery of 30 SSJ100 aircraft in total was concluded with Interjet.

Demonstration of the aircraft allowed the experts and potential operators in the region to see value in the unique cockpit ergonomics, spacious aircraft compartment and other competitive advantages, as well as receive information about aircraft reliability, its strong economic performance based upon the experience of aircraft operation by Russian and foreign airline companies.

One of the hallmarks of air carriers in this region is a high standard of comfort. SSJ100 aircraft with interior developed by a renowned Italian design-center Pininfarina is characterized by an optimum compromise of commercial performance and maximum comfort level.

The Middle East is one of the most important regions for Sukhoi Superjet 100 promotion. According to the market review delivered this year by UAC for the first time, rate of passenger carriage growth will amount to more than 6 % during 2015-2034 in average. By the beginning of 2030 air companies' passenger turnover will reach 12 % of global values and will amount to 1,845 bln passenger-kilometers. Forecasted sales of aircraft with capacity from 60 up to 200 seats at the market of the Middle East during the aforementioned period will exceed 700 aircraft.

RUSSIAN EXHIBITION INDUSTRY IN NEW ECONOMIC CONDITIONS

Analysis of the situation in the exhibition industry had been the main topic of the press conference "Russian exhibition industry in new economic conditions" held in MIA "Russia Today". The head of the CCI of Russia Mr. Sergey Katyrin, General Director of ZAO "Expocentre" Mr.Sergei Bednov, the President of the Russian Union of Entrepreneurs of Textile and Light Industry Mr. Andrew Razbrodin met with the press.

Exhibition activity was one of the most important tools to promote domestic business to the Russian and foreign markets, said the President of the CCI of Russia Mr. Sergey Katyrin.

He recalled that not so long ago was a time when neighbors did not know what was the main business of their regional neighbors. They were looking across the sea to buy or sell the right product, whereas it was enough to look into the next county. Now exhibitions are only to find new products and technologies; they also help to find partners, to choose a common position on issues of concern and new areas for business development.

The annual turnover of the exhibition market in Russia is about $ 800 million. This is the seventh place in the world, that seems to be not so bad, but it would be better if there were enough of exhibition space, however we have only about 780 thousand sq. meters, said Mr. Sergey Katyrin. It is extremely low- only 2 percent of the total area of the exhibition centers in the world (the USA - 20%, China - 15%).

In recent years the industry had faced difficulties. The market had shrunk due to sanctions: exhibitors were 14-15% less than in 2015, one in five potential foreign participants did not dare to come to Russia. Nevertheless, now the exhibition had more and more Russian participants.

In addition, Mr.Sergei Katyrin said that at the upcoming congress in March, the Chamber of Commerce and Industry of the Russian Federation will have a separate discussion on the problems of the exhibition industry.

'DUX'-BRANDED RENAISSANCE

The most experienced aircraft building enterprise in Russia begins its new stage of development

One of the world's oldest and the most experienced aircraft manufacturers, Russian factory 'Dux' which celebrates its 123-d anniversary this year, is now undergoing full-scale upgrading phase. Known worldwide for its air missiles the enterprise is going to significantly increase the range of equipment manufactured and among other things enter a world market with its new civilian products. We have had a conversation with Director General of 'Dux', JSC Yuri Klishin about principles of changes and new milestone of 'Dux'.

— Mister Klishin, 'Dux' has a life history full of bright pages…

— The enterprise which traces its history back to 1893 had been an all-purpose machine builder for over 120 years. Among its great values there was a capability of mastering new products in record time and putting wide range of goods into production. Suffice it to recall that during its history 'Dux' had been producing hardware for circus, bicycles, motor bikes, propeller-driven sledges, airship, planes, air weapons, missiles and so on. The enterprise received the habitual title 'the first' as it comes from its name (Latin Dux for the first). In 20th century 'Dux' actually became the father of a number of aircraft companies and brands such as 'Sukhoi', MiG', 'Yak', 'Vympel', 'Progress'. Today its main serial products are close air combat air-to-air missiles R-73 and R-73E as well as launcher P-72. I would like to add that thanks to performance R-73 leaves behind all known foreign counterparts in terms of reliability and safety. I may state it is based on my personal experience. According to experts this kind of missile is the most used one by air force.

— How can you describe the current stage of the enterprise in the context of its great history?

— During its more than 120-year-long history 'Dux' has always been known for its diversified production and multifunctional products. Today we are also on the way of full-scale increasing product range. We wish to manufacture versatile goods both military and civil ones. Now we are fully engaged in doing so. Furthermore our enterprise is

extending fields of application of military products. In particular, there are plans to upgrade the missiles as a whole and their components.

Quick mastering of new products has been the main distinctive feature of our company throughout its history. From bicycles and motor bicycles to propeller-driven sledges, aircraft, engines, weapon systems and small arms. Thus, range of products is defined by state requirements. 'Dux' has been very quick in responding tasks and manufactured appropriate goods.

Nothing has changed so far. We are ready for a prompt mastering the widest range of products in favor of the state or customers based on the vast experience and perfect technical facilities which are being now intensively renewed.

— What current 'Dux' programs do you think are the most promising and important?

— Our main task is increasing efficiency of our weapons. If yesterday our priority task was a serial production, today we are extending our range of products intensely. We are planning to become developers. In its new capacity 'Dux' is going to be in charge of every stage of weapons life cycle: from design to disposal.

We make use of the best traditions of the best Russian engineering centers, cooperate with them, work side by side with national aircraft builders, provide 'Dux' designers with the newest technologies, master modern production decisions…

— Is 'Dux' a big cooperative business today?

— Yes, it is very big and it includes dozens of enterprises and broad geography from Saint Petersburg and Moscow to Kyshtym and Kurgan. Besides, another important thing is that we have managed to reach mutual understanding with our partners based on close technical collaboration, exchange of guidelines and so on. All this is done to significantly increase rate of mastering new products.

'Dux' is deeply involved in industrial networks. We work with almost all leading national aircraft building enterprises such as 'Sukhoi', Komsomolsk-on-Amur, Novosibirsk aircraft plant, 'Irkut'. 'MiG', 'Sokol', 'Ilyushin' etc. Moreover, we produce diversified goods and components both for military and civil aircraft.

— What can you say about the export geography of 'Dux'?

— The export geography is very and very broad. It includes former Soviet republics and far-abroad countries such as China, India, Angola, Vietnam, Egypt, Cuba and others, which altogether involve every region of the world: Asia, Africa, North America, South America.

— Who pays 'Dux' to manufacture new products?

— Development of new products requires the enterprise to changeover to another more complicated regulatory system. Thus we see incomparably more regulations, rules, standards, specifications etc.

Yuri Klishin, Director General of 'Dux', JSC

We are managing these challenges step by step.

In addition to that we have much more cooperation with various research and development institutions, government entity-owned bodies including Russian Ministry of Trade and Industry and Defense Ministry.

The production of new goods has been always done according to stricter rules. There are increasing requirements towards skill level since something new has to be added to the development, performances and operation should be improved, weapons potential should be increased.

— Are products already produced by 'Dux' going to be improved too?

— Certainly. Thus, we were engaged in and now manufacture removable

Автомобиль «Дукс» для развозки товаров

armaments such as flexible guns. Now we are moving this equipment to a more advanced technical level using latest technologies including microscopic electromechanical systems. We are completely improving control unit and other assemblies.

— And what about development program?..

— We defined the focus of interests during the first development stage, defined enterprises to cooperate with. They confirmed they were also interested in our new products. By the way, it concerns not only military but also civil products the range of which we are going to significantly increase including export-oriented ones.

I would like to highlight that 'Dux' and Russia may fully rely on the own technological capacities and studies related to innovations.

— As for innovations. Is 'Dux' developing ground effect vehicles now?

— We have a program for development of nonconventional vehicles which include among others ground effect vehicles and airships. We are engaged in both subjects.

Ground effect vehicle is a high-speed (up to 250-300km/h) amphibious vehicle capable of long-distance carrying passengers and cargo over various water surfaces including oceans and ice. The speed of such vehicles is three-four times bigger than that of any fast-moving ship.

Meanwhile airships are very good for Russian environment. Western Europe with its well-developed traffic network does not probably need this kind of vehicles. But we have lots of space and difficulties in supplies to far regions… Moreover, an airplane or a helicopter require special pad for takeoff and landing, but an airship is capable of moving to a site, lifting a cargo and transporting it to anywhere. Many advantages are offered in this case.

Ground effect vehicles have also many advantages…

— In other words, both airships and ground effect vehicles are not incredible being a real project the enterprise is involved in today?

— Yes, of course. Although we are in the beginning now and there are a lot of things to do in this regard, we have made real steps already. Thus, one of our ground effect vehicles is now being tested in northern environment of Yakutia.

— Is it a sequel of a known Soviet 'Lun'?

— It is not. Though the project was very interesting, the vehicle was very heavy (over 500 tons) and had low carrying capability. We are making a vehicle made of composite materials, which weighs three tons and can carry three tons payload. The Russian-made composite materials are lighter than water. Operational and safety-related issues have been solved. Besides, we focus on standardizing equipment, fuel systems, navigation, communications etc.

— Are the new vehicles transportation more money-saving?

— Carrying one ton cargo by 'Ruslan' aircraft is approximately 10 times more expensive than carrying the same ton by an airship. It is true that an airship cannot fly 600-700km/h, its cruising speed is 150-200km/h. However, often high speed is not required. Besides, we are making hard structure airships capable of withstanding any load and being widely-used for tourist purposes, for example. It has several decks with cabins, elevators, restaurants and other tourist entertainments.

SOME HISTORICAL DETAILS

'Dux', JSC traces its history back to 1890's when Yuri Meller came to Moscow from the town of Weisenstein in Estonia. In 1893 using his wife's dowry he purchased a small mechanical workshop in Sadovaia-Triumfalnaia street in Moscow. So he began with a production of thin-wall pipe-made parts for circus (aerial bars, stepladders, ladders etc.). Later he began to manufacture steam heating pipes. During the first year the workshop turnover was 30 thousand rubles. In 1894 Yuri Meller set up assembling of bicycles buying components from England. Bicycles were constantly improved, the owner was quickly introducing new technologies.

The production was continuously extended: annual release of bicycles grew from 150 pieces in 1895 to 1,000 pieces of different versions every year. By the end of 19th century there had been 115 workers at the factory. In spring 1901 the company bought a piece of land in Tverskaia Yamskaia and began to build a production facility upon the project of architect Gippius. By the end of the year equipment was installed in the new workshop and the factory commenced operation.

In early 1900's 'Dux' started to set up a production of petrol-powered bicycles followed by cars with 7hp engines like American Oldsmobiles. In 1905 the enterprise manufactured about 100 Duxmobiles, 30 of which were fully Russian-made. The company has become the only ever Russian car-builder which produced steam, electric and petrol-driven cars.

Aviation became the next stage. Having begun with manufacturing airships in 1910 'Dux' built its first airplane, and in 1910's the enterprise was nearly fully engaged in producing airplanes. Thus it became the biggest in Russia aircraft building factory. The beginning of the First World War led to pickup in orders. In average release of aircraft increased 2.5 times. Thus, during the period from 1914 till 1917 the factory built 190, 382, 481 and 543 airplanes respectively. No Russian aircraft building factory has had such production grow rates.

After the 1917 Revolution all aircraft building enterprises were nationalized. 'Dux' was named State Aircraft Building Factory 1 (GAZ 1). Not limited with producing smooth-running serial goods 'Dux' set up serial production of new battle planes during difficult period of the Civil War. Along with building new aircraft the factory was engaged in aircraft overhaul. In the beginning of 1923 a design office was established at the factory 1. The office was headed by N.N.Polikarpov.

By the beginning of 1930's the factory 1 built 100 aircraft on a monthly basis, making nearly all components and assemblies by itself apart from motors and instruments. By the beginning of the Great Patriotic War the factory remained the only plant which specialized in producing air weapons. It manufactured almost all aircraft guns for Soviet fighters, ground support planes and bombers.

During the Second World War the factory fully changed to military production. Along with air guns it manufactured weapons for infantry. In 1946 the factory began emergency mastering series of Tu-4 strategic bomber.

— Is 'Dux' ready to produce sporting airplanes too?

— Yes. The point is that there are nearly no sporting airplanes manufactured in Russia. Though there is a demand, not so much for single-seaters used by highly-qualified pilots during sports events but two-seated airplanes designed both for training and sport flying. Making a sporting airplane is also included in 'Dux' plan for development.

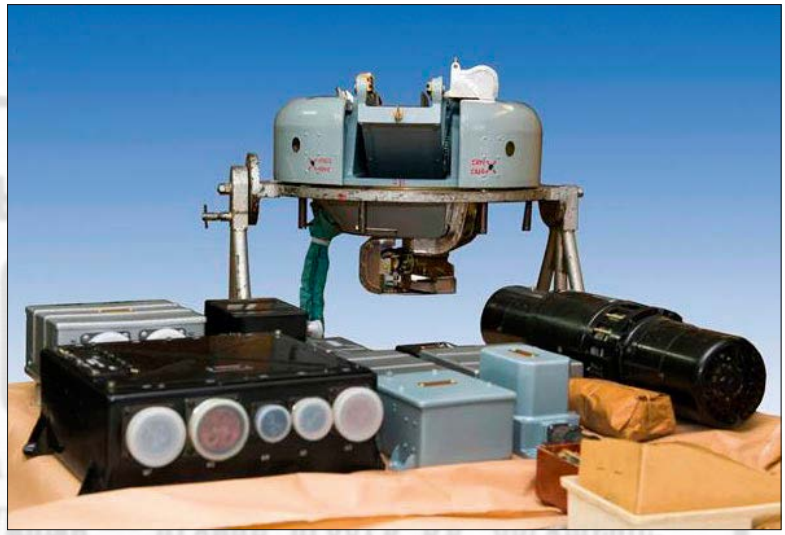
— You have extensive plans which require significant technological capabilities…

— Currently we are engaged in intensive equipment modernization. We buy new machines, renew and upgrade existing machines, install new attachments. Let us say we mount high-velocity spindles, holders, cutters, computers on solid powerful cast frames of Soviet and Russian machines.

Meanwhile, we bear in mind economy of each production area and buy only the equipment with certain performance which we require. When choosing machines and machining centers we rely on engineers' opinion who directly define things needed for production. In general we follow a flexible system allowing us to perform upgrade in real-time mode.

Among the principles we follow to establish development strategy of 'Dux' is self-dependent and self-sufficient production to avoid being a hostage of circumstances. Currently it is self-sustainment which often determines stability of an enterprise, the extent it is ready for challenges especially in limited supply situation.

We have decided to increase our self-dependency, liveness and cost effectiveness. As I said before



for this purpose we are upgrading production, renewing personnel, establishing cooperation with other research and development institutions and entities both military and civil ones. Thus, we try to be independent and define new approaches and views to develop some or another product, both military and civil. We wish to enter new markets not due to dumping price but thanks to higher quality goods, which are 'Dux'-branded. This is worth doing that.

— So we may state 'Dux' is in the beginning of a new development stage?

— It is. When introducing new workshop and department managers I say we are developing, we are on a new spiral turn of our history. That is why our requirements to managers and frontline employees get stricter. We also have high quality standards since we have to achieve the goals we defined. By the way, the changes which 'Dux' is going through today find support from our partners and customers. We extend the range and area of application of our products, improve quality, and create such performance level which has never been offered in the market before.

— Will these changes influence on export too?

— Certainly, they will, in the most positive way. By the way, foreign customers being as a rule quicker to respond to market changes make requirements to have products quality improved. 'Dux' in its turn tries to be in advance of main international technological trends. Of course, we do it first of all for the benefit of Russian armed forces.

Besides, we surely try to make export-oriented developments. Russian development-related legislation allows us after entering contracts with Ministry of Defense to acquire author's rights for products and use them in the future for improvement. We use technologies which help us create high quality reliable 'Dux'-branded goods which have no rivals in the market at all.

Indeed, no one has thought of creating redundancy rate for missiles. We have managed to do that. We have harmonized solutions for many critical issues. Thanks to this we are going along the road of increasing accuracy, versatility and capacities of our products. We are striving to harmonize solutions to achieve required results in a money-saving way. Due to our own developments our goods are getting more reliable and efficient.

— In what areas is 'Dux' going to extend the range of its products?

— 'Dux' has been always known for its capability of flexible and quick responding to various demands. Further on we will keep on performing missions assigned relying on experience, technologies and our courage for creating unexpected technical solutions. We are not going to stop with extending capabilities of our products and field of application, for example in terms of mobility, which lead to great outcome.

— In other words, you will do what is required?

— We will. Obviously, some supreme forces help our enterprise. It had been initially enshrined with an idea of quick response to demands. Since Latin 'Dux' stands for lookout, leader.

— To what extent are you ready to discuss establishment of joint production facilities on the premises of purchasing countries?

— We are quite ready for it. It does not contravene our legislation or policy of 'Rosoboronexport' which well facilitates establishing joint enterprise in various countries. Besides, we are in principle ready to extend cooperation with partners in friendly states, by exchange of specialists among other things.

— What are today's key trends in missile matters?

— First of all, this is pursuance of multi-task capability, increase of accuracy, antijamming capabilities and versatility. Secondly it includes decrease of cost. Besides, 'Dux' tries to perform these tasks by using non-traditional methods among others, based on new technological and organizational principles.

— Where do you get money for such full-scale changes?

— Export contracts make the main source of income. Although everybody is talking about the crisis and difficulties, we consider this period the field of great opportunities and discuss mastering wide range of civil products.

— Do you regard R-73 missile is a masterpiece of military technological thinking?

— Beyond any doubt! It features tested and very dependable aerodynamic configuration, long life. Conducting scheduled repairs of very old missiles we can see they are well operational, though some separate details should be replaced according to service policy. This missile has many ways of development. Fitted with new hardware components it can feature significantly increased fighting capabilities, range, speed, strength. We know a number of upgrading areas where the product can do its best.

Today many efforts are being made to update R-73 missile and its launcher. The missile is getting extended capabilities in terms of performance, G-loads, controllability, dependability, altitude and range. In general the updated version is going to be 1.5 times more efficient. The launcher used by all front-line aircraft is being improved too.

Although currently demand exceeds production, we are extensively developing new areas which include not only missile production. The areas involve warning panels, various electric valves, high-pressure tanks, electric mechanisms and other products most of which are components for other finished goods. We are absolutely sure that manufacturing wide range of goods is some sort of a safeguard against crisis situation.

MISSILE R-73

Short range air-to-air infra-red seeking combined aero and gasdynamic control missile is designed for conducting fast-moving close air combats, killing air targets (fighters, ground support planes, bombers, transport aircraft, helicopters and cruise missiles) from rear hemisphere and on collision course. It is capable of operating day and night, under active countermeasures taken by enemy, in any climatic conditions. The missile can also destroy ground-based heat-source targets and automatic drifting balloons.
The missile can be launched by both ground and ship-based fighters or ground support aircraft.

Combat performance:	
– Launch weight, kg	105
– Length, mm	2,900
– Body diameter, mm	170
– Wingspan, mm	510
– Finspan, mm	385
– Warhead weight, kg	8
– Launch range: *Max front hemisphere, km* *Min rear hemisphere, km*	 30 0.3
– Max angle of attack, grad	40
– Max lateral G load, g	60
– Designating angle, grad	±45
– Homing eye deflection angle, grad	±75
– Target altitude, km	0,02…20
– Max speed of target, km/h	2,500
– Target G load, g	up to 12
– Warhead type	rod
– Powerplant	Single-mode solid fuel engine
– Proximity fuse	Active radar fuse / Active laser fuse

PRODUCTION FACILITIES OF 'DUX', JSC:

Equipment in use:

– John Ford
– DMG
– HAAS
– AC-200
– Trumatic-120R
– Gemini
– Schaublin- 225
– Cheron
– Anka

'DUX', JSC IS ENGAGED IN THE FOLLOWING PRODUCTION:

ELECTROPLATING

Automatic three-layer decorative and protective coating system (nickel, semi-bright nickel, bright chrome) for producing decorative and protective coatings for steel and copper with a capacity of 15 m2/hour.
The system is used for restoring cleaners, chroming solutions, continuous selective cleaning of nickel plating solutions, conservation of cleaning water and materials. The production is eco-friendly.

Silver-plating, gold-plating electrolytes and cleaning water recovery unit.

The types of coatings being manufactured are as follows:

- Alkaline zinc-plating (galvanizing) with brighteners made by Atotech Deutschland GmbH (Germany);
- Sulphated cadmium-plating with brighteners;
- Hard chromium plating;
- Nickel-plating;
- Electroless nickel-plating;
- Copper-plating;
- Tin-plating;

- Tin-bismuth alloy coating;
- Aluminum alloys anodizing;
- Aluminum alloys chemical oxidizing;
- Phosphating;
- Oxide phosphating;
- Stainless steel electrolytic polishing;
- Stainless steel chemical passivating;
- Removal of alfin layer from titanium alloy parts;
- Copper alloys chemical passivating;
- Silver-plating.

BLANKING AND STAMPING

- Mass production of 160x160mm up to 2mm-thick flat parts of any configuration powered by Bruderer-made press (with equipment available);
- Piece and low-batch production of up to 12mm-thick flat iron parts of any configuration powered by laser-beam machines LW -1325 and Platino 1530-2200-2D;
- Piece production of up to 3mm-thick flat parts of any material powered by punching machine TRUMATIK-120R;
- Low-batch production of parts drawn with stamping tools (height 160mm, diameter 400-500mm, thickness up to 6mm) powered by ERFURT 2500tf press machine;
- Low-batch production of pressed parts powered by general-purpose press machines 16, 25, 63 and 100ft;
- Forming (heated) of titanium parts with horizontal size of 500x1200mm powered by knee crank machines 2,500ft;
- High-ductile materials impact extrusion (aluminum, copper, brass).

There are works underway to produce low-carbon steel parts.

TOOL PRODUCTION

There are all types of equipment, to produce the most geometrically complicated parts (press tools, moulds, devices, special machine attachments, special non-uniform cutting and measuring tools). In particular, there are electrical discharge cutting machines AS-200 to make cut out patterns with maximum size of 400x250x256mm and tracer controlled punching machines AT-270 with maximum axial stroke (y, z) of 500x350x500mm. Tools are manufactured with Gemini and Picomax 90 Top grinding machines.

MECHANICAL PROCESSING

Is done with:

- Automatic, semiautomatic and computerized capstan machines up to quality class 7 and up to 50mm;
- Multi-axis boring machines;
- Gear-shaping and gear-cutting automatic machines;
- All kinds of grinding finish;
- All types of milling machining;
- Processing with multi-operation ocomputerized machines (machining centers SHAUBLIN -60; SHAUBLIN-100; SHAUBLIN-140; SHAUBLIN-150; SHAUBLIN-180; SHAUBLIN- 225; Picomax-54 top); HAAS; Cheron.
- Rolling of thin-wall shells;
- Cold heading of parts up to 80mm and up to 80mm long;
- Thread rolling with automatic and semi-automatic threading machines with up to 20mm and quality class 6.

FOUNDRY, FORGING AND FORMING FOUNDRY

Various methods of cast molding:

- Aluminum and zinc alloys (from 0.005 to 10kg heavy) high pressure casting (pic. 1);
- Aluminum, magnesium alloys and cast iron sand casting; hand molding. Casting weight from 0.1 to 80kg (pic. 2);
- Lost-wax casting of constructional steel (35KhGSL, 16KhGTL), specialty steel (08Kh14N5M2DL, 10Kh18N9BL), copper alloys (bronze, brass). Casting weight from 0.005 to 15kg (pic. 3);
- Metal mold casting of aluminum and magnesium alloys including high-strength aluminum alloys SIGMA > 40 kgf/mm2, DELTA > 8%. Casting weight from 0.03 to20 kg.

Alloys in use:

- Aluminum: AK12, AK7ch, AK8l, AM4,5Kd, GOST standard 1583-93;
- Magnesium: ML5, ML5pch., GOST 2856-79;
- Bronze: BrA9ZhZL, Br010F1, Br010S10, brass LS59-1L;
- Zinc alloy: TsA4M1
- Steel: ST.20, 35KhGSL, 16KhGTL, 10Kh18N9BL, 08Kh14N5M2DL;
- Capability of casting with other alloys is available.

FORGING AND FORMING

- Forming of heated blanks of steel and non-ferrous alloys with weight from 0.003 to 20kg with crank-type friction press;
- Open forging of steel or non-ferrous blanks with weight from 0.1 to 60kg;
- Non-ferrous forging (200mm and 150mm);
- Open forging by ring rolling;
- Cutting of blanks to be formed and open-forged with shearing press, belt and rotary saw.

WELDING

Oxy-hydrogen welding;

- Argon arc non-consumable electrode welding of aconstruction, stainless steel, titanium and aluminum alloys;
- Consumable electrode welding of construction low-carbon steel in carbon-dioxide environment;
- Lock-chamber-assisted continuous brazing in rotor and vacuum furnace of heat-resistant construction steel with high melting point solders in chromium powder;
- Oxy-acetylene brazing of high-pressure pipes;
- Inert atmosphere copper brazing of low-carbon and construction steel with recovery elements available;
- Argon arc impulse welding of sheet structures of titanium and aluminum alloys;
- Arc plasma cutting of sheet aluminum, stainless steel and copper alloy blanks.

ASSEMBLING

Electrical works:

- Producing wire harnesses, checking electrical data, connector sealing;
- Assembling and soldering of circuit boards;
- Producing electronic assemblies with modern microprocessor-controlled heat soldering stations PACE (USA) capable of ensuring the most safe soldering mode;
- Manufacturing of electronic units, adjustment and checking of electrical data by means of test and control equipment.

Assembling:

- Winding of armatures, stators, coils, toroidal cores;
- Producing of up to 1,500W-strong electric motors;
- Producing contact switches;
- Assembling products, adjustment, equipment monitoring;

Polymeric powder paint-based coating line is designed for:

- Producing coatings featuring high decorative and protective, insulating, physical and mechanical properties;
- Coloring long steel and aluminum products and parts of any configuration.

PLASTIC AND ELASTOMERIC PRODUCTION

High-pressure molding of such thermoplastics as polyethylene, polyamide, polycarbonate, ABS plastic, polypropylene and others by means of injection-molding machines:

- KuASY – injection volume from 31 to 407 cm^3;
- KLOCKNER – injection volume 1,760 cm^3;
- SP – injection volume from 130 to 1,230 cm^3;
- MST – injection volume 3,100 cm^3.

Robotic system "KLOCKNER" Ferromatik Desma which includes injection-molding machines W-650 and W-800 is equipped with modern molding process data control facilities powered by microcomputers and microprocessors. Thanks to use of thermostat WCC-45, robotic manipulator "Remak" and drying unit "Somos" all production cycle including raw charging and pickup and placing parts is fully mechanized and automated:

- Rubber mix rolling;
- Pressing thermoset materials and rubber vulcanization by means of hydraulic press RNM-63, D2430B, RNM-100 using such molding materials as DSV, phenolic plastics, amino plastics and rubber mixes.

Thus, thanks to well-qualified personnel and modern equipment our enterprise is capable of excellent accomplishing any engineering and production task.

The unique combination of advanced technologies, special attention to details, selection of the best components, high production quality and many-year experience makes production capacities of 'Dux', JSC one-of-a-kind. Our efforts to reach best value for money are a guarantee of success.

/RA&MG/

SERVICE IN CHINA

Russian Helicopters will create a maintenance and repair centers for Ka-32A11BC and Mi-17 helicopters in China. The service centers will be located in Shenzhen. The initial phase will involve maintenance for Ka-32A11BC helicopters, with service provision for Mi-17s to follow on later. All helicopters are operated within China. Also Russian Helicopters has concluded an agreement with China for delivery of 3 Ka-32A11BC helicopters by the end of 2015. Russian Helicopters also has signed a contract with China General Aviation Service Co. Ltd. The two Mi-171 helicopters will be delivered in 2016.

The Ka-32A11BC is designed to carry out specialized search and rescue and construction work, transport cargo within the cabin or on an external sling, logging, evacuating the sick and injured, complex firefighting missions, patrols and support for special operations.

The Ka-32A11BC is ideally suited to China's highly urban at the centers, its environment and climate. It operates effectively in highly built-up cities, remote mountainous and forested regions, and can also land on decks and small vessels, drilling rigs, and unprepared difficult to access locations. They can be operated by one pilot, and the cabin can be equipped with additional specialized equipment.

Experts recognise the Ka-32A11BC as one of the world's finest fire-fighting helicopters, and it is a symbol of the Global Helicopter Firefighting Initiative, a programme aimed at increasing the efficiency of specialised firefighting helicopters kitted out with suspended fire-fighting systems, water cannons and other firefighting equipment.

Russian Helicopters will develop an aftersales service system for Mi-17, Mi-171, Ka-27, Ka-28, and Ka-31 helicopters operated in China. The helicopters will boast modernised engines, BREO avionics systems, the latest navigation systems, in addition to improved flight safety, and engineering repairs infrastructure, and a contract covering maintenance work on Russian components will be concluded.

During the international helicopter exhibition China Helicopter Exposition 2015, Russian Helicopters outlined its proposed after-sales service provision for Russian-made helicopters operating in China. It will encompass the repair, technical maintenance and modernization of Mi-17, Mi-171 helicopters, 17 Ka-27/28 helicopters and 9 Ka-31 helicopters operated under the Chinese Navy.

"China is a key strategic partner: we are more than trading partners, we work together on promising projects. One involves creating a heavy helicopter," Russian Helicopters CEO Alexander Mikheev said. "Building aftersales service systems for Russian-made helicopters operating in China will not only help improve their lifespan, but will also see them equipped with the very latest technological developments."

The Mi-17 and Mi-171 helicopters will gain modernized engines, auxiliary power units, gears, equipment to enable a non-parachute landing, early warning systems that sense artificial obstacles, high voltage power lines, or the ground, in addition to satnav systems. The Ka-28 will gain the latest BREO avionics suite, pilot navigation and target acquisition complex, and the latest flight information registration system.

Mi-171 helicopters are operated successfully across China, in particular in places with challenging topographies and harsh climates. They are used in a variety of cargo transport operations – delivering medicines, humanitarian aid, construction materials, as well as in search and rescue and emergency response operations.

Mi-171 helicopters were used in operations to rescue people following the severe April 2013 earthquake in Sichuan province. Mountain roads had been completely destroyed – and helicopters were the only way of delivering goods. Russian helicopters were highly rated by Chinese search and rescue teams and helicopter operators for their reliability, resilience and ease of use.

China is a major operator of Russian-made helicopters, with Mi-8/17 models being the most popular. China has a fleet of around 150 Mi-171 helicopters. In June 2014, Russian Helicopters concluded the delivery of 52 Mi-171E helicopters to the Chinese company Poly Technologies. Mi-171E helicopters are equipped with VK-2500 engines.

«Nine Ka-32A11BC helicopters have been delivered to Chinese commercial and state operators. These helicopters will be operated by the city of Ordos' Main Directorate of Public Security, Shanghai Public Security Directorate, and a number of commercial companies. China's State Oceanic Administration also operates the Ka-32A11BC, - Russian Helicopters CEO Alexander Mikheev said.

The Ka-32A11BC is designed to carry out specialised search and rescue operations, is used in fire-fighting missions, and in the evacuation of the sick and injured. The helicopter is ideally suited to China and in particular for operation in mountainous and heavily built up urban environments. **/RA&MG/**

According to information from the Russian Helicopters

RUSSIAN HELICOPTERS FOR INDIA

Russian Helicopters, part of State Corporation Rostec, delivered the final batch of helicopters to India under a previously signed agreement. India received 151 Mi-17V-5 military transport helicopters produced by JSC Kazan Helicopters through Rosoboronexport. Under an agreement between the Russian and Indian governments with regard to cooperation in the helicopter industry, the production of no less than 200 Ka-226T helicopters and its modifications will be organized in India.

Russia and India have commenced a large project aimed to produce no less than 200 Ka-226T light utility multirole helicopters, as RIA Novosti was informed on Thursday by the press office of Russian Helicopters (part of State Corporation Rostec). During Indian Prime Minister Narendra Modi's visit to Moscow last December, the Russian and Indian governments signed the agreement on cooperation in the helicopter industry. According to the document, no less than 200 of the Ka-226T helicopters and its modifications will be manufactured in India.

The agreement also includes maintenance, operation, repairs of helicopters and provision of technical support. "Currently, the sides have begun implementing the agreement. Large-scale international deals usually have a lengthy preparation period, with deal details kept confidential. All work is being carried out in accordance with the terms of the agreement. Technical consultations and talks between the Russian and Indian companies involved in the project are already being conducted," said the company's press service.

The press office noted that "there are no contradictions between the partners". "In the nearest future we

will approve technical and organizational details covering all key parameters. The holding specialists are currently assessing production capacity of our Indian partners," informed the holding company.

According to the agreements, the localization of components "will be very deep: the contract will be implemented in accordance with the 'Make in India' program adopted by the Indian government."

The light multirole Ka-226T helicopter was designed by Kamov Design Bureau (a subsidiary of Russian Helicopters) and is serially produced at Kumertau Aviation Production Enterprise. It has a coaxial main rotor system and is noted for excellent controllability and power-to-weight ratio.

KA-226T is equipped with modern flight control equipment. The helicopter easily maneuvers in dense urban and mountainous areas. Absence of a tail rotor and compact size make it possible to use on small landing pads. Ka-226T boasts low noise level and meets all latest environmental performance requirements. It has a swappable transport module allowing to change the helicopter's functionality within a short time.

"India is one of the key markets for Russian helicopter building industry and the largest operator of Russian-made helicopters in the South-East Asia. Today, this country uses more than 400 helicopters, which have proved themselves well," said Russian Helicopter CEO Alexander Mikheev. "We produce high-tech multirole helicopters capable of solving the most difficult tasks anywhere in the world."

The Mi-17V-5 helicopters supplied to India are some of the best technically equipped helicopters of the Mi-8/17 series and gathered the best solutions of previous generations. Every Indian Mi-17V-5 helicopter is fitted with a KNEI-8 avionics suite. The suite has replaced multiple systems indicators with four large multifunctional that are easy to read and reduce the intensity of pilot's workload. This avionics suite also helps to cut down pre-flight inspection time by displaying all systems data and alerting the crew when necessary.

Besides, the helicopters supplied to India are equipped with the latest and more powerful engines, which will greatly enhance its payload carriage capability at higher altitudes, characteristic of the Indian landscape.

As recently announced, Russia and India have started to implement a large project aimed to manufacture of no less than 200 light multirole Ka-226T helicopters. According to documents signed by the governments of the two countries, no less than 200 of the Ka-226T helicopters and their modifications will be manufactured in India. The agreement also includes maintenance, operation, repairs of helicopters and provision of technical support.

In addition, the Indian Air Force is planning to order another 48 Mi-17V-5 helicopters. These new helicopters will be used for flights over various landscapes, in deserts as well as in mountainous regions.

The Indian Air Force (IAF) has received the last of the Mil Mi-17V-5 'Hip' medium-lift platforms it ordered from Russian Helicopters, ahead of the expected signing soon of a contract for more, it was announced on 2 February.

Delivery of this final batch of the 151 Mi-17V-5 helicopters for India marks the end of a procurement programme launched in 2008 (including 12 ordered for India's paramilitary forces). In July 2015, the IAF announced its intention to procure 48 additional platforms, but it has yet to sign a contract.

Russian Helicopters, (part of State Corporation Rostec), is one of the global leaders in helicopter production and the only helicopter design and production powerhouse in Russia. Russian Helicopters was founded in 2007 and is headquartered in Moscow. The company comprises five helicopter production facilities, two design bureaus, a spare parts production and repair facility, as well as an aftersale service branch responsible for maintenance and repair in Russia and all over the world. Its helicopters are popular among Russian ministries and state authorities (Ministry of Defence, Ministry of Internal Affairs, Emergency Control Ministry), operators (Gazpromavia, UTair), major Russian corporations. In 2014 its IFRS revenues increased 22,8% to RUB 169,8 billion. Deliveries reached 271 helicopters.

Produced by JSC Kazan Helicopters through Rosoboronexport, the Mi-17V-5s fielded by India are among the most advanced variants of the 'Hip' helicopter family. They are equipped with more powerful engines for 'hot and high' conditions (the IAF has employed them to sustain Indian Army formations deployed along the 6.4 km-high Siachen glacier in the Himalayas) and the KNEI-8 avionics suite that replaces the previous analogue cockpit with modern digital instrumentation.

India has also issued a request for information for its fleet to be fitted with an advanced electronic warfare (EW) suite that comprises radar warning receivers (RWRs), missile approach warning systems (MAWS), and countermeasure dispensing systems (CMDS).

A growing mission for the IAF is humanitarian and disaster relief (HADR), and the service is looking to procure the additional helicopters specifically to give it more capacity in this role. In 2013 one of the Mi-17V-5 helicopters was lost while participating in rescue operations in the flood-affected north of India, killing five.

While most of the delivered Mi-17V-5 helicopters have been weaponised, it is not clear if the additional 48 will be.

Kazan Helicopters produces Mi-8/17 series helicopters that are operated in over 100 countries worldwide. A wide range of configurations are produced: transport, passenger, search and rescue, landing and transport, among many others. Preparations are underway to launch production of the Mi-38 passenger transport helicopter. Since 1997, Kazan Helicopters has been certified to develop helicopter technology: today the light twin-engine Ansat helicopter is in series production.

Russian Helicopters demonstrated its newest multipurpose helicopters during the 4th Bahrain International Airshow – 2016 at Sakhir Air Base, Bahrain. The holding company not only showcased its products and capabilities in after-sales service for helicopters produced by Russian Helicopters but also conducted negotiations with current operators and potential buyers from North Africa, Near and Middle East.

One of the key focuses during negotiations was the development of an integrated after-sale service system and ensuring quick first-rate services for helicopters throughout their entire life cycle. The fleet of Soviet/Russian-made helicopters in Near and Middle Eastern countries today exceeds 500 civil and military aircrafts. The possibility to conduct timely maintenance and repairs in the target region would allow local operators to achieve better operability of helicopters and cut costs.

The Mi-171A2 helicopter, the successful heir of the most popular Mi-8/17 series of medium helicopters, has significantly better specs for consumers. With VK-2500PS-03 engines developed by Klimov, APU Safir that ensures engine start at heights up to 6,000 m, advanced aerodynamics of the main rotor's composite blades, and the X-shaped anti-torque rotor, this helicopter has better speed performance, lifting capacity, enhanced capabilities in mountain areas, at high temperatures and humidity, and lower operational expenses. The helicopter's ability to operate in adverse weather conditions, day and night, in mountain areas and above water is ensured by its new avionics, including the KBO-17 integrated open-architecture flight and navigation system and advanced automatic control system which allows piloting in automatic, automated and manual modes. High automation level makes it possible to use crews with just two members. At the present time, a flight test program with two prototypes is underway.

The Ansat light helicopter with the largest cabin in its class, up to seven passenger seats, will be of substantial interest to the air-show visitors. Certification of its VIP variant with five seats and an air-conditioning system makes the helicopter attractive for corporate and private customers. The cabin has shock-absorbing seats and vibration-reducing armrests. For additional passenger comfort there are also flight kits with active noise reduction. With the use of quick-detach equipment kits, Ansat can be quickly refit for a wide range of tasks including transportation of cargo and passengers, search and rescue operations, and medevac missions.

Russian Helicopters will also feature its multipurpose Ka-32A11BC model, which is capable of solving a variety of tasks, from cargo transportation internally and on an external sling to patrolling, search and rescue operations, and firefighting. The availability of quick-detach equipment kits makes it possible to quickly adapt the helicopter for the operator's tasks. The Ka-32A11BC is certified according to international standards; one of its main features is the ability to operate day and night in adverse weather conditions, above land and water. The helicopter is designed to land on unprepared and unpaved landing pads, with air temperatures up to + 45°C.

The Ka-226T helicopter has a unique set of features that make it indispensable for operations on small pads, including mountainous areas. Due to its excellent maneuverability, small size, absence of the antitorque rotor and high power-to-weight ratio, the helicopter is capable of performing transportation and special tasks under rough conditions. In addition to the above, its low noise level and compliance with modern and future environmental requirements make it possible to use the Ka-226T over densely populated areas. **/RA&MG/**

According to information from the Russian Helicopters

State Corporation Rostec is a Russian corporation founded in 2007 for the purpose of promoting the development, production and export of hi-tech civilian and military industry products. It comprises 700 organisations, nine of which have now been formed as holding companies of the military-industrial complex, five of them are involved in civil industries and 22 are directly controlled. Rostec's portfolio includes recognised brands such as Avtovaz, Kamaz, Russian Helicopters, and VSMPO-AVISMA. Rostec's organisations are located in 60 constituent entities of the Russian Federation and supply their products to the markets of more than 70 countries. The revenue of Rostec in 2014 amounted to RUB 964.5 billion. The tax deductions into the treasuries at all levels exceeded RUB 147.8 billion.

SECURE RESCUE AT ANY HEIGHT

Unique autonomous rescue parachuting back-pack system for emergency escape

The innovative Russian private Space Rescue Systems Ltd. (SRS Ltd.) company (www.cosmic-rs.com) proposes a unique and unrivalled emergency rescue vehicle SPARS® — an Autonomous Rescue Pneumo Transformable Chute Back-pack System — a validated forefront rescue solution for guaranteed secure individual emergency escape from nearly any high elevation structure (skyscrapers, offshore platforms etc.). The SPARS® project is resulted in a creation of a brand new pneumo-framed aerodynamic devices technology. There is no doubt in the near future this solution is going to be a must-have in skyscrapers construction all over the world

The SRS Ltd. proposes a SPARS® high rise escape technology that has a global nature. It is uncovered market niche with an obvious but unrealized human requirement to be and to feel safe while living or working in high elevation buildings. In case of emergency than traditional evacuation is impossible or ineffective those people all over the world have practically no means of urgent secure rescue from the height and need an alternative solution.

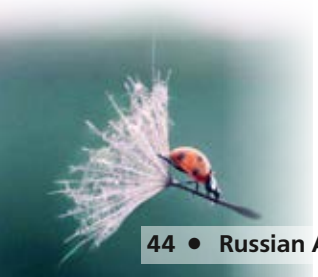
Actually the technical reviews shows that at present there are practically no means for secure alternative escape starting from 60÷80 m height and higher available on the market. But according to the sad firefighter's statistics about 3÷5% of people being caught in alarm situation on the high-rise building used to try escaping from the windows and usually perished. On the other side homeland security analytics says that in average an every skyscraper in the world is expected to be subjected to a fire case (terroristic attack or other emergency) once in every 47 years.

So the SRS Ltd. has decided to resolve the problem in finding an alternative to traditional evacuation methods technical solution. It takes about eight years of R&D to resolve the task. Finally it is resulted in creation a brand new escape technology - an Autonomous Rescue Pneumo Transformable Chute Back-pack Solution for secure personal rescue from high-elevation structure in case of emergency than traditional evacuation methods are impossible.

The SRS. Ltd company in outsourcing cooperation with 18 leading Russian and foreign aerospace companies has fulfilled full-scale research and development activities to develop the project from conceptual proposal stage to releasing operating prototypes unparalleled anywhere in the world.

The SPARS® escape technology is based on a synergy of sophisticated aerospace technologies such as Air-Aspirator Rapid Inflation; Elastic Pneumo-Frame Catapult Ejection; Air-Drag Deceleration; Air-Bag Shock Absorbing and others. Such technologies were invented for space probes deceleration during descent in atmospheres of Solar system planets and its landings on surfaces.

The SPARS® device provides a secure individual escape of untrained person or valuables cargos with weights 45÷120 kg. from about any of existing high-rise (50÷1000m) facilities (skyscrapers; towers; offshore platforms etc.) with guaranteed safe landing on any underlying surface in urban terrain or water in



case of emergencies than traditional evacuation methods are impossible.

The SPARS® solution meets the Russian Ministry of Emergency Situations (EMERCOM) requirements for high-rise emergency escape apparatus (GOST R 22.9.08–2005; GOST R 12.4.206–99) and provides for the following unique capabilities, never implemented before:

1. Alternative of emergency escape (so-called 'last resort rescue')
2. Emergency evacuation of an untrained person having weight of 45÷120 kg, from heights of 50÷1,000 m;
3. Ready-for-use in 45÷60 sec;
4. Self-sustained operation and independently selected escape route;
5. User-friendly operation for untrained persons and fully automated rescue procedure right from start;
6. Personal protection against external hazards during evacuation;
7. Appropriate weight of a back-pack-type carried device;
8. Secure injury-free landing on any underlying surface.

The SPARS® unit for individual use had required a special certificate basis. In this regard the National Standard (GOST) 4240-001-2012 specifying medical and technical requirements for injury-free operation by untrained persons rescued by means of new type SPARS® shock-absorbing systems entered into force in 2013.

To have certification tests performed a special Hybrid-III (USA) crush test dummy-based anthropomorphous (bionic-like) instrumentation station has been developed and created by the SRS Ltd., which has no equals in Russia.

A full cycle of comprehensive calculations and testing to validate design properties and performance has been performed. Up to now the SPARS® device technical operational reliability is 98.7% but further testing is under way.

New SPARS® escape solution provides the following advantages:

1. Alternative (a "last resort") escape mean for ordinary person in case of emergency in the high-rise structure;
2. Secure rescue of untrained personnel (18÷70 years old) from high elevations from 5 till 1000m (no practical means available starting from 50 m height);
3. Off-line capability of the system provides mobility that helps to find optimal self-escape way of out from emergency situation;
4. Smooth automated ejection from the emergency object after manual initialization of the system;
5. Guaranteed deploy of the canopy with 3÷5 m loss of height irrespective of air flow speed pressure;
6. Protection from dangerous external factors (fire, hits, smoke) during descent;
7. Safe landing on any underlying surface in urban terrain;
8. Reusable and does not sink.

In packed and assembly complete mode the SPARS® system weights 25 kg with back-pack dimensions

The SPARS® General Specifications

1. Total Assembly Weight – 25 kg
2. Rescue Payload Weight – 45÷120 kg
3. Descent Elevations – 5÷1000 m
4. Landing Velocity – 5÷7 m/s
5. Landing Angle – < 30°
6. Footboard Barrier Elevation – 1.5 m
7. Descent Time – 3÷150 s
8. Ready-to-use Time – 45÷60 s
9. Launch Initialization Time – 15÷20 s
10. Inflating Gas – Air;
11. General Dimensions:
    a. Aassembled – 900x450x300 mm
    b. In Descent mode – 6,500x2,700mm *(without conopy)*

Actual Landing Impact Loads:

Acceleration directions:

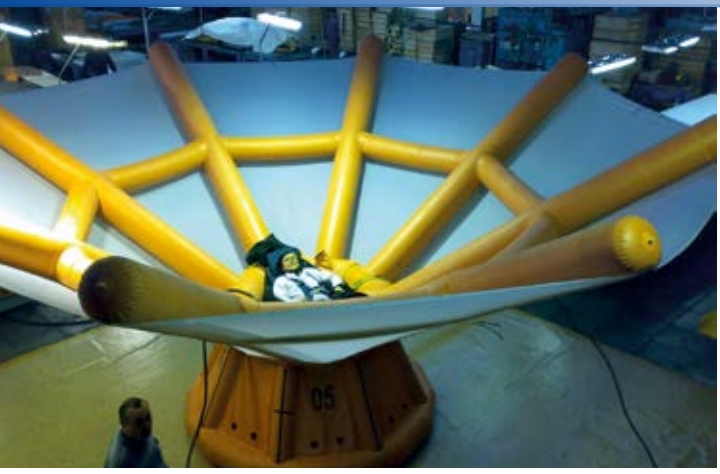
'chest-to-back' – up to 8÷10 g

' side-to-side', 'head-to-pelvis' – up to ± 6 g

Acceleration Exposition Time – less than 0.5 s

Acceleration Growth Velocity – less than 500 1/s

User's age – 18÷70 years



850x450x350mm and has easy- to-use suspension system.

The SPARS® has its Technical Data Sheet (TU 801130–5047075064–01–10) and working design documents issued. Under the SRS Ltd requirements Russian gas-filling systems (GFS) manufacturing company has mastered Autonomous Two-Stage GFS for SPARS® (TU 8042–017–45307693–2013).

The SRS Ltd. Intellectual Property Rights on SPARS® and its 'know-hows' have been completely protected within Russia (9 Patens, 3 Trade Marks) and abroad under PCT (Patent Cooperation Treaty) procedures 2 'umbrella' requests for SPARS® have entered national level in 15 countries and covered 78% skyscrapers and 95% potential SPARS® manufacturers. 13 Patents of the US, China, Japan, Canada, South Korea, Singapore, the Ukraine, Indonesia, Malasia and Australia have been already received.

Three Russian EMERCOM Certificates of Conformity were received for the SPARS®. 'Aerospace medicine and military ergonomics' R&D Institute of the Russian Air Force has granted an official approval for the SPARS® physical adaptability.

The SRS Ltd. company now is looking for cooperation with a strategic Partner and/or investor in order to industrialize the brand new SPARS® product; to make it commercial; to prepare and set up its production and to enter with it into a global commercial market having all necessary intellectually property rights protected.

An accurate assessment of the terms, timeframes and investments required for the SPARS® industrialization it is foreseen that a Partner from the region where product itself (or its production) could be demanded (Middle East, China, US, Europe, Asia-Pacific etc.) could formulate and provide the SRS Ltd. Company with the regional authority technical requirements to upgrade the product specifications and also could determine the necessary level of licensing.

At the same time in order to reduce production costs it is desirable to find and select a local manufacturer taking into account its technical capabilities and possibility to use appropriate production process technologies.

Upon receiving necessary information from a Partner the SRS Ltd. Company could finalize the design documentation, to fabricate a prototype with specifications meeting local needs and to determine expected investments and timeframes necessary to prepare and to run mass production of the product in the region.

Shares and Conditions in the business organization is a matter of further negotiations. The SRS Ltd. Company would be ready to demonstrate its good willing approach and to meet a Partner in negotiations halfway with necessary flexibility in some critical questions aiming to achieve mutually beneficial cooperation.

Such forms of cooperation as Joint Venture, Technical, Manufacturing or License Agreements are feasible.

For a strategic industrial Partner sought who would be interested to

There are following innovations in the proposed SPARS® technology:

1. A brand new free parachuting technology (means and escape method) was created for emergency escape from heights higher than 50 m where practical methods for safe evacuation of a person are not available on the market.
2. Sinergy solution based on specially designed and produced from film-laminated fabric a rapid inflatable air-beam single volume frame structure for:

– Elastic catapult ejection of a human from a window of an emergency object;
– Forced deploy of the canopy with only 3÷5 m loss of height and irrespective of air flow speed pressure for deployment (usual parachute requires of 25÷100 m free fall and/or 250÷350 km/h speed of airplane to be deployed);
– Guaranteed safe landing with 5÷6 m/s vertical velocity on any underlying surface in urban terrain using integrated air-frame shock absorbing pneumo dumper.

3. Fully automatic mode of usage (after manual initialisation of the apparatus) and all the descend envelope accelerations bearable for an ordinary person make the escape solution available for use by untrained people from 18 till 70 years old;
4. New type of light weight air-proof film coated fabric for air-beam inflatable frame structure was created.

The Special National Standard (GOST) for shock acceleration limits for untrained human using new type of lodgment Rescue Parachuting Systems was issued.
The Crash test dummy Hybrid-III 50% percentile was instrumented, calibrated with the help of centrifuge, certified and used as anthropomorphic instrument for human acceleration checking during field tests and validation of the Autonomous Pneumo Transformable Escape Chute.

run mass production of the SPARS® in the region and enter an empty market with protected rights it would be necessary to have production technology experience in the fields of:

- thin coated/laminated fabric manufacturing;
- assembly from these fabrics a complex air-beam-frame air-proof inflatable structures;
- parachute canopy manufacturing;
- air-aspirator gas filling manufacturing;
- plastics (carbon) manufacturing and forming
- human field (air-borne) tests plastic forming and others.

A Partner sought may be expected to undertake part of those activities or provide financing for already SRS Ltd. Company existing outsourcing manufacturing solution in Russia on a mutually beneficial basis.

As for the SPARS® solution operation such a potential entity sought (hotels, profitable houses; skyscraper's management company; offshore platform management; airborne attractions & entertainment companies etc.) should only require a free window exit sized 1000x500 mm at the appropriate height to use Autonomous Pneumo Transformable Escape Chute and propose to its clients an additional exceptional secure service with limited warranty.

General market estimations shows there are over 7,303 finished and 2,500 under construction skyscrapers worldwide with the heights of 100÷828m, over 100,000 buildings having height of 50÷100m and more than 800 offshore platforms. Taking that analysis into account the SPARS® may have potential market capacity of up to $700-850 million annually.

Furthermore, the SPARS® estimated potential market capacity is worth over $3.5 billion in commercial sector alone. The Governments market is bigger but for accepting that new technology implementation it may require some updates of the appropriate local norms and regulations. **/RA&MG/**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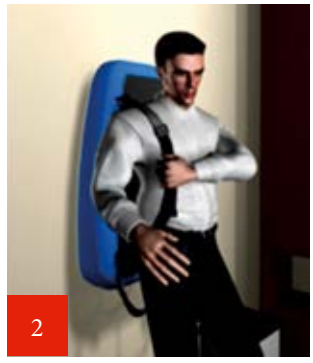
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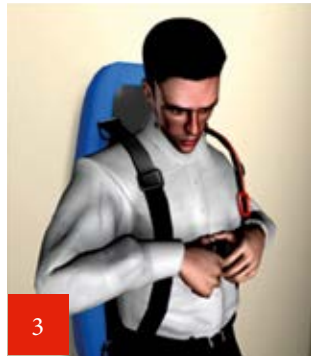
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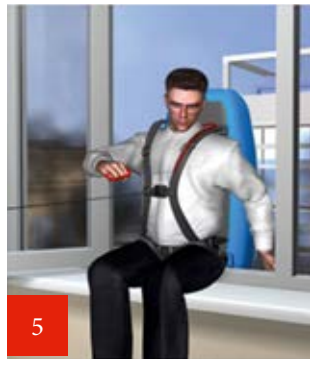
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Plan of the magazine «Russian Aviation & Military Guide» 2016

	Release dates	Additional distribution
«RA&MG» №01	February 15th	SINGAPORE AIRSHOW-2016 *(Singapore, February 16-21)*
«RA&MG» №2	March 14th March 27th	INDIA AVIATION 2016 *(India, March 16-20)* DEFEXPO INDIA 2016 *(India, March 28-31)* International Naval exhibition and the conference DIMDEX 2016 *(Qatar, March 28-31)* International exhibition of aerospace and military equipment FIDAE 2016 *(Chile, March 29th – April 3rd)*
«RA&MG» №3	April 16th	International Asian conference and the exhibition of systems and services for the defense industry DSA 2016 *(Malaysia, April 18-21)* International air show in North Africa MARRAKESH AIR SHOW 2016 *(Morocco, April 27-30)*
«RA&MG»№4	May 5th May 27th	International conference and the exhibition of the special rapid reaction forces SOFEX 2016 *(Jordan, May 10-12)* International aerospace exhibition and the conference ILA Berlin Air Show 2016 *(Germany, May 31th — June 5th)*
«RA&MG»№5	June 10th	International exhibition of arms, security technologies and instruments of defense EUROSATORY-2016, *(France, June 13-17)*
«RA&MG»№6	September 12th	nternational African exhibition of the defensive aerospace industry and security technologies Africa Aerospace and Defence 2016 *(South Africa, September 14-17)*
«RA&MG»№7	October 14th	International exhibition of the naval equipment and arms EURONAVAL 2016 *(France, October 24-28)*
«RA&MG»№8	October 31th	International exhibition of arms and the military equipment InfoDefence *(Indonesia, November 2-5)* International aerospace exhibition Air Show China *(China, November 1-6)* DUBAI Helishow, *(Dubai, November 7-9)*
«RA&MG»№9	November 15th	International exhibition of the Navy in Latin America ExpoNaval *(Chile, December 1-8)*
«RA&MG»№10	December 10th	The results of the export of Russian aviation and military equipment in 2016

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