

## **INNOVATIONS at 10th MAKS - RUSSIA**

### **TENTH MAKS BRINGS RUSSIAN EXHIBITION AS EVER.**

The 10th MAKS event was opened by the prime minister of the Russian Federation, Vladimir Putin on 16th August 2011. The MAKS ever started quite modest but became one of the most important aviation events in the world, bringing companies and customers together in business areas and creating a visual spectacle to public by attractive demonstrations of the newest aircraft types. Off course with Russia on the main spot but also with growing influence of Western companies. They give the event the attractive name Aviasalon.

### **COOPERATION IN AVIATION INDUSTRY**

In the same year of the celebration of 100 years Russian aviation industry and 50 years after Yuri Gagarin encountered the space as first human being, there is a lot to celebrate in Russia, It was certainly the case on the 10<sup>th</sup> MAKS with spectacular demonstrations of several aircraft. Concerning sometimes airliners such as the A-380 or Sukhoi Superjet, but in general dominated by military airplanes with the most important appearance the Sukhoi T-50 PAK-FA or Russian 'Stealth' fighter. This was very appreciated by the public for both own attractions like the 'Russian Knights' stunt team as visitors such as the USAF F-15 air superiority fighter from Lakenheath, creating both their own show element. Traditionally the MAKS event is hosted by the airfield Zhukovsky which is owned by the Gromov Flight Research Institute and a location where every important Russian aircraft design bureau (OKB) has its own hangar.

These OKB's including Sukhoi, RAC-MIG, Jakovlev, Tupolev, Ilyushin, Beriev, and Myassichev are cooperating nowadays in a conglomerate called United Aircraft Corporation (UAC) and if in the hands of Vladimir Putin leading to a new UAC headquarter at Zhukovsky which should be realised during the next MAKS in 2013. He understands fully the competition with manufacturers from Western Europe or the United States and he knows also that the aim to generate more orders and challenge big competitors it requires a more united Russian aircraft industry. While several orders were expected for Russia, the promises were not completely fulfilled and still not-Russian companies like Boeing or the French SAFRAN group are able to sell more airplanes. UAC intends to be competitive with new designed airliners using composite wings and will be produced in the Irkut factory.

### **NEW INNOVATIONS**

Totally 842 companies from 40 countries showed their products in aviation, space-technology, avionics, weapons, missiles and UAV's. On the ground were 241 airplanes on static and 102 aircraft were displayed in the air. The Gromov Flight Research Institute itself put its Ilyushin Il-76 test bed on the static with a new jet engine in a test composition on the inner position of the left-wing. We were able to

have a look inside the cargo-bay where screens and instruments were positioned, receiving data from the engine to be tested which happened to be an engine for the Indian Light Combat Aircraft (LCA). Next to this the Il-76 was accompanied by a Tupolev Tu-154M Future Aircraft Control Testbed tasked for testing of avionics and cockpit systems. There were many company aircraft at the static and several were moved to the runway for demonstrations in the air and were afterwards put back on the static. The helicopters gave a show together and performed also individually including the new Mi-26T-2 (with glass cockpit and digital engine control), Kamov Ka-32A fire fighter, Kamov Ka-226T air ambulance, Mil-Mi-38 multipurpose helicopter and the latest variants of the Kamov Ka-52 and Mil M-28 attack helicopters. Some types have been exhibited at previous MAKS airshows while others are new.

In general manufacturers try to fit new innovations on successful models. Some models are unique. In the spotlight were off course the Sukhoi Su-34 Fullback and also Yakovlevs Yak-130 trainer, the Mig-35 and Sukhoi's several Flanker variants. A big area on the platform was reserved for the United States which country put several types of the USAFE on exhibition including B52, F-16, A-10, KC-10 together with a P-3 from the US.Navy. A twin engine multipurpose aircraft with the name Rysachok was promoted and could be a successor of An-2 in both civilian and military flying schools. The aircraft was developed by Technoavia and is produced by the Samara Space Center facility and was designed to facilitate flying schools. The cockpit is digital and the aircraft has Czech engines while flights under IFR and VFR conditions can be trained.

## **DEVELOPMENT UNMANNED AVIATION IN PROGRESS**

In Russia there is also a development in the world of Unmanned Aerial Vehicles (UAV) in a parallel way with the West. Not only observation or reconnaissance models were to find on the MAKS but Russia is also seeking its way to arm unmanned airplanes. The technology of unmanned aviation was also introduced in the world of helicopters. Both were to find on the 10<sup>th</sup> MAKS. A project called AERO Lui is a result of Czech-Russian cooperation and uses coaxial rotor just like Kamov. Other interesting developments were from Moscow Aviation Institute (MAI), the university for aerospace technologies, and include small robotcopters and one of the models can be armed with Kalashnikovs and is valuable in military missions, but also in police tasks against terrorists. The Russian Aviation Industry was presented very well in inside the many pavilions. Many industrial supplies could be found inside including engines for example from Lyulka or Ivchenko and also missiles from Vympel, TMC or Raduga which products can easily compete with products from Western counterparts. Outside was an example of the Russian/Indian 'Brahmos' cruise missile which is to be claimed as the best in the world at this moment.

## **BUSINESS AND SHOW**

More than a half million people visited the MAKS including some 110.000 experts, more or less for business as usual or for media purposes while the others mainly were there to let them be attracted by the varied flying activities. The MAKS is of

main importance in the world and in the same category like the Les Bourget, Farnborough or ILA shows. Everything is about orders and to achieve this, the newest technology is presented. The first presentation to the public of the Russian 'Stealth' Sukhoi T-50 Pak Fa, although announced, was very welcomed and still surprisingly to the public. It was visible to experts that the T-50 did not display to the limits and is probably put under restrictions of the company. A second T-50 did have a heavy engine failure on the runway. Sukhoi dominates nowadays and the formation flight of the Su-34, Su-35 and T-50 was an example of that. Mig presented the Mig-29OVT and the Mig-35 and the latter also in tanker version. Several aerobatic teams performed on the show including the Russian Knights and their Flankers and the Strizhi (Swifts) from Kubinka with their Mig-29 but also the two stunt teams with L-39 named the 'Baltic Bees' from Riga-Letland and the Vyazma Rus from Russia.

The appearance in the air of a Mig-3 and I-16 Rata showed that there is interest in vintage aviation in Russia. Also aircraft of Western Europe received their chance and the demonstrations of the Rafale with 30.000 flying hours painted on the fuselage, the F-15 and A-380 were a pleasure to observe. Russian technology creates interesting airplanes including aircraft which do not have counterparts elsewhere in the world. For example the Su-34 long distance interdicator with possibility for the pilot to stand in the back for some time. Other aircraft or helicopters are modified into products with modern capabilities such as the Mi-26T2 with a glass cockpit, FADEC, 4-axis autopilot and communications on both NAVSTAR and GLONASS. The most fascinating item however is the capability of the T-50. The question is rising if this aircraft is fully competitive with the Lockheed F-22 Raptor. The Future will let us know.

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Wim Das & Kees Otten

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