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## **BERIEV-12 'Chaika' a view at the old lady - Ukrain**

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### **UKRAINIAN SEAGULL**

Visiting a Beriev Be 12 unit of the Ukrainian navy is something special. Nowadays flying boats are only in limited numbers active in the world and considered as something of the old days. However these airplanes can be useful in several naval activities and perhaps that is why they are still active in those countries recognizing the benefits of these planes.

### **HISTORY SHAPED A NEED FOR THE BE-12**

The Ukrainian Navy took the Beriev Be 12 'Chaika' (Seagull) out of a heritage from the old Soviet Union after the split up into the Commonwealth of Independent States (CIS). To have a good view about this type of aircraft we must look back to the history of it. In the late nineteen-fifties the threat on the Soviet Union of nuclear attack from US submarines (SSBN's) was increasing. At that time those submarines were equipped with Polaris I rockets which had a limited range to reach targets on Soviet ground and therefore the submarines had to go fairly close to Soviet coastal areas. The Soviet Naval Air Force (Aviatsiya Voenno-Morskovo Flota) applied for a new aircraft capable of detecting and killing nuclear missile submarines in the coastal waters of the USSR. Once issued the requirement was given to the aircraft designing bureau of Beriev in Taganrog at the Sea of Azov coast.

This bureau was being familiar with the production of flying boats. Beriev remarkably put two different aircraft into option. The Beriev Be-10 ( NATO code name: Mallow) was a new flying boat with two Lyulka AL-7RV turbojets mounted in the wing near the fuselage. While developing the Be-10 also the design proposal of the Be-12 (NATO code name: Mail) was submitted to officials and accepted. The turboprop driven flying boat was first thought to be based on the older piston engine Be-6 but had a different fuselage and wing. Both types were revealed to the public at the air show of Tushino in 1961. Initially driven by the thought to take the Be-10 into service the military authorities found out that the Be-10 suffered from operational difficulties such as serious limitations in operational capabilities and the lighter Be-12 could also sufficiently do the job. At that time Western naval air forces were rapidly phasing out flying boats and it was expected that the USSR would do the same, but this was a misunderstanding. The Be-10 was cancelled in favour of the land-based Tupolev Tu-16 for maritime patrol but the Be-12 sustained.

### **BE-12 IN SECONDARY ROLES**

Totally 143 examples were produced in series production at Taganrog between 1963 and 1973. The Be-12 entered service in 1964 and by 1967 all older Be 6's were replaced. All four Soviet Naval Fleets were equipped with the Be-12 in the Black Sea, the Baltic Sea, northern region of the North Sea and in the Pacific. Three decades later the Be-12 was still in widespread service around Russia's shores. This is remarkably because the reason why the Be-12 was designed was diminishing shortly after the Be-12 entered service and would have declined the operational value of the

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Be-12. U.S. Submarines were rapidly re-equipped with the Polaris III with greater range and enabled them to stay away further from Russia out of the range of Be-12 flying boats. The Anti Submarine Warfare mission was given to long range maritime patrol aircraft with greater range and frigate based ASW helicopters. As it was going that way in the West with Orion patrol aircraft in Russia the same happened with the introduction of the Ilyushin Il-38 May. However the number of Il-38's in service was limited and the Be-12 would occupy the coastal ASW function for many years.

One thing providing the success was its robustness and another one was its versatility. The Be-12 turned to be a splendid performer in secondary roles such as coastal surveillance, anti shipping patrol, Search & Rescue, reconnaissance, military transport, supplies to ships, and photographic survey. The Be-12 could also be tasked in civil orientated missions for the Russian Government such as fishery control, whale control, Arctic base supply transport, mapping, anti smuggling actions, geophysical survey and all forms of utility transports.

## **QUALITY IN DESIGN**

The twin engine flying boat has a characteristic wing which resembles the Seagull or Chaika with two ZMDB Progress (Ivchenko) AI-20DK or AI-20DM turboprop engines high mounted on the wing. In its main role of ASW-patrol the operational range is up to 500 km from shore. Initial the nose radome was drum-shaped but around 1970 the Be-12 appeared with a new radome flattened at the top and oval shaped at the bottom housing the search radar. Lessons learned in previous types constructed Beriev's designing bureau were useful in the Be-12 concept. The design of the under fuselage of the Be-10 and Be-12 were equally. These were fitted with a prominent spray suppressor around the bows. Those long and narrow surfaces function as protection from water during take off and sea landing.

A sturdy retractable landing gear makes the Be-12 flying boat an amphibious aircraft. The aircraft is divided into 10 compartments with watertight bulkheads. If any of the compartments is damaged the buoyancy of the aircraft remains. Under the wings are installed floats for lateral stability. The Be-12 can load on the water through large side hatches in the rear fuselage and stores can be dropped through a watertight hatch in the hull aft of the step. In favour of the Il-38 May operating on sonobuoys only, the Be-12 could next to these also operate on its own sonar when settled on the surface of the water. In the tail a Magnetic Anomaly Detector (MAD) was fitted to track submarines in flight. The Be-12 was equipped with a quite advanced radio system for the sometimes complex navigation above the water and to assure safe landings in low visibility and night conditions and also for searching on the surface of the water. The detection for submarines was based on the 'Baku' sonar system with three types of sonobuoys, air magnetometers and APM-65 radar initiative 2 B system. Some 1500 kg. armament can be hanged on external pylons including bombs, depth-charges (including nuclear SC-1 'Scalp'), AT-1 torpedoes and anti-shiping missiles. The initial Be-12 fleet saw some upgrades during the seventies. Some 27 examples were converted to Be-12N with new sensors, avionics including ESM-receivers and tail warning system, ASW-unit including MAD with integrated Nartsiss search/attack system in the already mentioned reshaped radome on the nose.

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## **CHAIKA'S TO THE UKRAINE**

On December 1991 at midnight the Soviet Union stopped with existing and was replaced by in depended states formed of previous provinces. Most of the Be-12's were kept in Russia with the naval aviation of the Russian Federation but after a period of arguing and negotiating about the split up of the naval forces in the South between Russia and the Ukraine finally after considerably time (in 1996) there was an agreement. This included that some 16 Beriev Be-12's were adopted by the Ukrain naval forces. Twelve were designated as Be-12PL for ASW and the other four were renamed Be-12PS dedicated to the SAR task. Some of those are still active today. It is said that Russia only operates a handful of this aircraft from 2005 onwards. They operate the type from Russian ground in the Ukraine.

This is one of the provisions negotiated to have control and support on the Russian Black Sea fleet. The Be-12 aircraft are nowadays mainly operating in the maritime patrol role and operates from land-based areas. The Chaika is a very robust design and the 'Seagull' like wing was shaped in a way the salt water was not very much splashing on it so the wing would endure longer. Aircraft returning to Taganrog for conversion showed surprisingly little signs of corrosion after many years of service. To protect against the ingress of water the engines were put forward from the edge of the wing. The aircraft is highly regarded by crew thanks to its flying characteristics and manoeuvrability with its powerful engines. Flying is like in the old days with heavy controls, analogue cockpit and noise and vibration from the engines. Real pilots love this but it is also demanding to experience this for hours. Flying only one or two hours in the Chaika already asks a special skill from the pilots and is requiring a highly physical condition for this heavy task. The Ukrainian Be-12's are part of the Viys'kovo-Mors'ki Syly Ukrayiny (VMSU) or Ukrainian Navy.

They are operating with the Saks'ka Aviatsiya Brigada (SABr) or Naval Aviation and are based at Saki nearby Simferopol. From there they operate above the black sea and Sea of Azov or above land area. Only six are believed fly worthy and half of this was in maintenance. The Be-12's operates mainly in the secondary role and do not go outside for specific sub hunting leaving this to Kamov helicopters. It is also not clear if the Be-12 is still suitable for the amphibious role. It is not known how many flying hours are reserved for be-12 flights but it is believed these are not so many. Pilots are keeping up flying hours substantially on the An-2 attached to SABr. However a few examples were converted to water bombers by the Beriev factory in Taganrog and are modernised to live longer the Be-12 history mainly remains in the Black Sea area with the few examples of the Russian and Ukrainian naval forces. For a while it is still possible to watch them in operational conditions however nobody knows how long it will be before the Chaika will return to base to go never out again.

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