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BELGIAN BALTIC AIR POLICING

REPORT AND IMAGES
BY JORIS VAN BOVEN
AND ALEX VAN NOYE



In January 2020, a media flight was organized by NATO Allied Air Command and the Belgian Air Force to visit the Belgian detachment at Šiauliai Air Base.

The commanding officer of the Belgian Air Force

detachment at Šiauliai AB in Lithuania briefed the media on the Belgian Baltic Air Policing.

In 2004, the Belgian Air Force was the first NATO Air Force to participate in the Baltic Air Policing program. Since September 2019, the 349 Squadron from

Kleine-Brogel AB, Belgium is one of two NATO nations tasked with air policing over the Baltics. The other one is Poland. The Polish Air Force deployed F-16s to Ämari AB in Estonia. After tensions in northern Europe and the Crimea increased, Šiauliai AB and Ämari AB

were added to the Baltic Air Policing program in 2014. The Baltic Air Policing program is under control of the NATO Allied Air Command based at Ramstein AB, Germany. For Baltic Air Policing, the overall control of the Baltic Air Space is coordinated from the Combined

As the alarm goes off, the pilot and a maintainer hurry to the aircraft.

Air Operations Centre (CAOC) Udem in Germany which controls the complete airspace of northern Europe. The Control and Reporting Center (CRC) at Karmėlava in Lithuania directs the Baltic Air Policing aircraft to their targets.

The Belgian detachment is at 24 hours, 7 days a week readiness with two aircraft. Within a maximum of fifteen minutes after being alerted (scrambled), two F-16s armed with live weapons are airborne. This is called the Quick Reaction Alert (QRA). Two additional F-16s are kept as spare aircraft at high readiness as well.

The Belgian detachment consists of a 'lean' group of only 60 personnel, split into three branches

- the operational branch: pilots and mission planners, also some firefighters and a meteorologist
- the maintenance branch: maintenance personnel for the F-16s for avionics and weapons
- the support branch: medic, military police, and one fighter-controller at the Control and Reporting Centre at Karmėlava (LT).

The Belgian F-16s are loaded with two AIM-120 AMRAAM anti-aircraft missiles (beyond visual range), two AIM-9 Sidewinder anti-aircraft missiles (within visual range) and one M61A1 six-barrel Gatling gun with some 500 rounds. Next to the radar, the targeting pod ('Sniper' Advanced Targeting Pod (ATP)) is used to zoom in on the target even before the pilots have visual sight on the target. With the targeting pod, it is easy to recognize the target and check for possible armament. The F-16s are also equipped with flares. Usually, these are used as defense measure against heat-seeking missiles. However, they may also be used to attract the attention of the person(s) inside the cockpit of an intercepted aircraft.

During night-flying operations, the Belgian pilots also use Night Vision Goggles to amplify the remaining light in the sky.

The task of the Belgian Baltic Air Policing pilots is the same as at home, safeguarding the integrity of the airspace, safe for all users and all participants.

If aircraft do not follow international rules, like using a transponder or identifying to air control centers or filing a flightplan, the F-16s are scrambled to intercept and interrogate the aircraft that do not comply. As soon as the jets are airborne, a fighter control officer at the CRC guides the F-16s to the aircraft to be intercepted. When a 'rogue' aircraft has been intercepted a report is sent to the CRC and a photo is made for confirmation.

If the intercepted aircraft is posing a danger to other

aircraft or is heading to a forbidden zone, like in case of an emergency; the F-16 will divert this aircraft into another direction. In 99% of the intercepts, there is just an interrogation whereby the F-16s fly next to the aircraft and check the cockpit.

There are three kinds of scrambles

- ALPHA-SCRAMBLE: the "real thing" where the aircraft are launched in less than fifteen minutes
- TANGO-SCRAMBLE: a training scramble where the full scramble is exercised, without any aircraft to be intercepted
- SIERRA-SCRAMBLE: this is a training scramble where the full scramble is exercised, without a take-off.

Since September 2019, some 20 ALPHA-SCRAMBLE intercepts were done by the Belgian detachment, intercepting fighters, transport aircraft, and even a strategic bomber. During wintertime, the number of intercepts decreases, with an increase during springtime.

Most ALPHA-SCRAMBLES happen on the airway between the Russian area of St. Petersburg and Russian enclave Kaliningrad located between Lithuania and Poland; as the only way to travel to/from Kaliningrad is by sea or by air, without requesting visa and custom-clearances.

Besides that, some unidentified helicopters fly between Kaliningrad and some oilrigs at sea.

After this briefing, a TANGO-SCRAMBLE was planned for the media. When airborne, two F-16s should intercept the Belgian Airbus A321 that brought the media to Lithuania. However, due to the bad weather, only a SIERRA-SCRAMBLE was performed. Thus, some archive photos of a previous NATO Allied Air Command QRA mission (September 2018) have been added to show armed Belgian F-16s alongside the Airbus A321.

- Groundcrew checking the aircraft during engine startup (top)
- On each side the F-16 carries two air-to-air missiles: one wingtip-mounted AIM-120 AMRAAM and one AIM-9 Sidewinder under the wing (bottom)





Belgian Air Force QRA F-16AM with a camera mounted at the canopy-frame to take photos of the intercepted aircraft



JAPANESE SAMURAI PHANTOMS

REPORT AND IMAGES
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Over the years, the F-4EJ Kai has established a great reputation in Japan. Over the years, the *Phantom* fleet has been drastically updated to the Kai standard. The type is currently in the last days of its career within the Japan Air Self Defense Force and it is being replaced by the modern Lockheed-Martin F-35A Lightning II. The *Phantoms* have served with the Japanese Air Force for over 45 years and have flown in eight squadrons during their service.

Backbone of the Japanese Air Defense

The RF/F-4EJ Kai *Phantom* has formed the backbone of the Japanese Air Self Defense Force (JASDF) for many years. Japan selected the originally American F-4 *Phantom II* as the new primary fighter aircraft in the late 1960s. On November 1, 1968, this choice was made public and Japan became one of the few countries which were licensed to produce this aircraft in its national factories. The Nihon Koku Jietai (Japan Air Self Defense Force, JASDF) received a total of 154 F-4-EJs and RF-4Es. Almost the entire fleet of F-4EJ aircraft was built under license by Mitsubishi Heavy Industries. The RF-4E photo-reconnaissance aircraft were built in America by McDonnell Douglas. In Japanese service, the F-4 *Phantom II* mainly had to replace a large part of the outdated Lockheed F-104J

Starfighters. Because of its role during the Second World War, Japan had a restriction that prevented the JASDF aircraft from being equipped with air-to-ground missiles and bombs. As a result, the original F-4EJ *Phantoms* were delivered without the AN/AJB-7 bomb computer. The aircraft also had no possibility of refueling in the air, because this option was not built in. As a result, the Japanese *Phantoms* had a short operational range and therefore, could only be used for the defense of Japan. McDonnell Douglas built the first two prototypes of the F-4EJ. These aircraft flew for the first time on January 14, 1971. The following eleven aircraft were assembled by Mitsubishi in Japan. The first copy built in Japan flew on May 12, 1972. Mitsubishi continued to build all F-4EJs over the next nine years and production ended after 127 F-4EJ aircraft on May 20, 1981. This aircraft was the last F-4 ever to be built throughout the world. The F-4EJ entered service within the JASDF in August 1972 with a total of six operational squadrons. The units equipped with the F-4EJ Kai were 301, 302, 303, 304, 305

and 306 Hikotai. In addition to these operational units, several *Phantoms* were assigned to the test unit at Gifu to participate in testing and developing deployment of the type.

Upgrade to the Kai Standard

To upgrade the aging *Phantom* fleet, the JASDF has launched the F-4EJ Kai program. The word "Kai" means "renewed" in Japanese and is therefore similar to the MLU project applied to the European F-16s in the 90s. Initially, 110 aircraft were designated for the

This RF-4EJ Kai is one of 17 F-4EJs which were converted to the RF-4EJ standard. It is assigned to 501 Hikotai and carries an AN/ALQ-131 electronic counter measures (ECM) pod for selfprotection against radar-guided missiles.



RF-4EJ Kai (inset left and main image and F-4EJ modernized to RF-4EJ Kai standard (inset right) assigned to 501 Hikotai



update, but that number later was reduced to 96. The aircraft were upgraded with an APG-66 radar, making the *Phantom* capable of attacking ground targets. The F-4EJ Kai flew for the first time on July 17, 1984, and the first F-4EJ Kai was first delivered to the JASDF 306 Hikotai on November 24, 1989. The aircraft was equipped with the smaller and lighter AN/APG-66J pulse Doppler radar and a head-up display which resulted in a lookdown/shoot-down capability. The central computer, the J/APR-6 homing and warning system, the IFF system, and inertial navigation were updated. The Japanese Kai *Phantoms* can carry a large 610 American gallon F-15 fuel tank on the centerline. This fuel tank can withstand higher g-forces than the original F-4 centerline tank. The F-4EJ Kai can also carry the Westinghouse AN/ALQ-131 advanced multimode electronic countermeasures pod under the inner wing hard-points. This defense pod contains a wide range of modules and re-programmable software which makes it possible to quickly face new threats during a deployment. After the update, the F-4EJ Kai can also launch the AIM-7E/F Sparrow and the AIM-9L/P Sidewinder air-to-air missiles. This update makes the F-4EJ Kai a modern weapon that is much

better able to perform national defense tasks. The Japanese *Phantoms* were also able to carry the ASM-1 and ASM-2 anti-ship missiles under the wings from this moment on. This adjustment increased the capabilities of the F-4EJ Kai in the role of anti-ship warfare. The *Phantom* took over the anti-ship role from the Mitsubishi F-1 because that aircraft had a too short flight range. Also, there were not enough F-1s in service in Japan to carry out the task properly. The P-3 Orion's could also be equipped with Harpoon anti-ship missiles, but were not a worthy interpretation of the anti-ship role because these aircraft were too slow. In addition to these maritime weapons, the F-4EJ Kai is also suitable for carrying other air-ground weapons in the form of various bombs and rockets. This has made the *Phantom* a multi-purpose aircraft in Japan. The F-4EJ Kai was quickly delivered by Mitsubishi to the operational *Phantom* squadrons. Within a

F-4EJ assigned to Koku Kaihatsu Jikken Shudan (Air Development and Test Command)



▲ F-4EJ Kai assigned to 301 Hikotai

▼ F-4EJ Kai assigned to Koku Kaihatsu Jikken Shudan





RF-4EJ Kai (above) and a F-4EJ modernized to RF-4EJ Kai standard carrying a photo-reconnaissance pod at the centerline station (below)



few years, it was decided to retire a large part of the *Phantom* fleet by replacing the aircraft with the Mitsubishi F-15J *Eagle*. The units at Komatsu were the first to make this switch to the more modern F-15J. In the mid-1990s, the F-1s began to age strongly due to the rapid technical progress of aviation. The three support units flying the F-1 had a lot of wear and tear on these aircraft. The Mitsubishi F-1 was already on the list to be replaced by the Mitsubishi F-2. However, this program was so delayed that it was decided to close the gap between the F-1 and the F-2 with the *Phantoms* from Komatsu which were released during the conversion to the F-15J. On March 17, 1997, the F-4EJ Kai aircraft were relocated to the 8 Hikotai at Misawa Air Base. In this role, the F-4EJ Kai was deployed for the first time as a ground attack aircraft. In total, the entire Japanese Kai fleet was reduced to just three operational squadrons. From 2001, 8 Hikotai has transitioned to the Mitsubishi F-2 at Tsuiki Air Base. The 302 Hikotai at Hyakuri AB started its conversion to the F-35A in 2019. The 301 Hikotai, also at Hyakuri AB, is the last unit in Japan which is still operational with the F-4EJ Kai.

Japanese Photo-reconnaissance Phantoms

One of the most special units of the Japanese Air Self Defense Force was the 501 Hikotai, based at the Japanese airbase Hyakuri. This unit was the only Japanese squadron that flew with the photo-reconnaissance variant of the F-4 *Phantom II*. The history of the 501 Hikotai began in Matsushima on March 27, 1962. The unit was established there as part of the Air Reconnaissance Group and initially had more than ten RF-86F *Sabres* in its inventory. At that time, the Sabre was the primary fighter aircraft of the Japan Air Self Defense Force (JASDF). The Japanese Sabres were, like many other Japanese combat aircraft, built under license by Mitsubishi Heavy Industries. In total, 501 Hikotai operated a total of eighteen RF-86F Sabres. The RF-86F was a modified version of the Japanese version of the *Sabre*. In the nose of the aircraft, the weapons were removed to make room for the cameras which would be used for reconnaissance tasks. A remarkable detail is that fake holes were painted on the fuselage nose section where the original version of the *Sabre* had the machine gun holes. In August 1962, the 501 Hikotai moved from Matsushima to Iruma. The unit also received several T-33As and a T-28B at this airbase. These aircraft were then used as base flight aircraft and for training and liaison. In October 1974, the unit moved from Iruma to Hyakuri, where they were equipped with the RF-4E *Phantom II* and the Tactical Reconnaissance Group was designated 501 Hikotai.



This RF-4E catches the arresting cable to rapidly stop the aircraft on the runway

After the move to Hyakuri in 1974, a detachment remained on Iruma with the RF-86F *Sabre*. This lasted until 1977 when the Sabres were phased out and a part was handed over to the Koku Sotai Shireibu Hikotai (HQ Squadron). The 501 Hikotai received fourteen RF-4E *Phantom II* photo-reconnaissance aircraft at Hyakuri. Remarkable about this aircraft is that it is unarmed and can only be used for reconnaissance tasks. It carries three types of cameras in the nose: a vertical camera, a camera for low altitudes and a camera for high altitudes. The photo-reconnaissance aircraft of the JASDF are easily recognizable by the beautiful color schemes and the well-known "woodpecker" on the tail. The emblem of the 501 Hikotai is derived from the

American cartoon character Woody Woodpecker. The woodpecker replaced the old emblem from the time of the RF-86F in which the woodpecker was wearing a bow tie and holding a telescope. Woody Woodpecker, however, still has his bow tie on the tail of the RF-4Es. To provide the 501 Hikotai with more aircraft for photo reconnaissance tasks, a total of fifteen F-4EJ *Phantoms* were converted to a photo-reconnaissance version. Seventeen F-4EJ aircraft were converted to the RF-4EJ *Phantom II* standard. In contrast to the standard RF-4E, this additional photo-reconnaissance *Phantoms* did not receive a modified nose section. The cameras of these aircraft were carried in special camera pods that were placed under the centerline of the aircraft. These pods initially contained the same

systems as the original version of the RF-4E. Just like the standard version of the *Phantom* the F-4EJ, the photo-reconnaissance aircraft were also updated to a higher standard to make the aircraft suitable for future use. The standard versions of the *Phantom* were modernized from 1984 and only after more than eight years, the first RF-4 *Phantoms* were up for an update. Of the original RF-4E *Phantom II* aircraft, thirteen of the fourteen were modernized to the RF-4E Kai standard, one aircraft was lost in the years before the update. For the largest part, photo-reconnaissance versions received the same upgrades as the standard version of the F-4EJ *Phantom*. The original RF-4E *Phantom IIs* were modernized to

the RF-4E Kai standard. The thirteen aircraft were equipped with an AN/APQ-172 TFR radar and the J/APR-2 RWR was replaced by the J/APR-5. Both systems were made in Japan. A part of the seventeen RF-4EJ photo-reconnaissance aircraft was also converted to RF-4EJ Kai Standard. A total of eight aircraft were updated to this standard. The other aircraft were phased out shortly after the update phase. Although no internal cameras were mounted in the RF-4EJ, the aircraft were modernized according to the Kai standard. The reconnaissance equipment of this version of the *Phantom* was mainly placed in the pods under the aircraft. The installed systems were equipped with the TACER (electronic reconnaissance pod with data link), the TAC pod with KS-135A and

KS-95B cameras, the D-500UR IR detection system and the LOROP pod with a KS-146B camera.

The unarmed RF-4Es could perform air measurements and photography in all weather conditions. The aircraft could also operate at night with the help of the different cameras which are built into the nose of the aircraft or mounted with a pod under the fuselage. The 501 Hikotai reconnaissance squadron mostly flew defense missions around Japan. The unit also conducted damage assessments after natural disasters, which occur frequently in Japan. The RF-4Es were used in the past to investigate the Fukushima Daiichi nuclear power plant following the March 2011 earthquake and tsunami in northeastern Japan. The aircraft also often helped to identify houses affected by landslides following the Hokkaido earthquake in September 2019. The RF-4E and RF-4EJ were well known for their exotic color schemes. The aircraft were painted in three different schemes. A green and brown scheme which was mostly applied to the RF-4EJ Kai. The RF-4E Kai traditionally had a green with beige color scheme. Some RF-4E *Phantoms* were painted in a blue color scheme that was applied on

the occasion of the 50th anniversary of the JASDF. All *Phantoms* showed a shark mouth painted on the nose of the aircraft. Some of the *Phantoms* had the well-known spook painted on the splitter plate of the intake.

Phantom Pharewell in Japan

The world-famous McDonnell Douglas F-4 *Phantom II* is currently still in operation within the JASDF. However, this will change soon. This year, the Phantom will be phased out all over Japan, being replaced by the modern fifth-generation Lockheed-Martin F-35A *Lightning II*. After almost 50 years of service with the Japanese Air Force, the Phantom is outdated and due for replacement. After a long study for a suitable successor to the F-4 *Phantom II*, Japan decided to acquire the Lockheed-Martin F-35A *Lightning II* in December 2011. Japan had initially chosen the Lockheed-Martin F-22A *Raptor*, but this application was eventually rejected because the aircraft would be far too expensive for the Japanese defense budget. The F-35A *Lightning II* is going to be Japan's first



RF-4EJ Kai assigned to 301 Hikotai



F-4EJ Kai assigned to 301 Hikotai



fifth-generation fighter plane and will, therefore, play the most important role in the JASDF. The very first Japanese F-35A landed at Luke Air Force Base in the United States on November 29, 2016. Since then, the JASDF has started training its first fighter pilots on this new fifth-generation fighter aircraft. At the U.S. Airbase Luke AFB, Japan is part of an international training unit that trains pilots on the F-35A Lightning II. At the beginning of 2019, the first F-35s would be relocated to Japan to form the first operational unit. Of the originally seven squadrons and a test unit, only one squadron and a test unit are now active with the F-4 *Phantom*. The other squadrons have since moved to the Mitsubishi F-15J *Eagle*.

In August 2017, it was announced that the 302 Hikotai would be the first unit in the JASDF to transition to the F-35 *Lightning II*. Until March 2019, the squadron has flown the *Phantom* for many years from Nyatubaru AB and later from Hyakuri AB. They moved from Hyakuri AB to Misawa AB in northern Japan that same month. The JASDF already started building the first F-35 squadron at Misawa AB in January 2018. Since the first *Lightnings* were moved to Misawa AB, thirteen aircraft have already been delivered to the squadron on Misawa AB within 15 months. On March 29, 2019, the 302 Hikotai was the first F-35 squadron to declare initial operational capability (IOC). In 2020, the unit will be supplied

- F-4EJ Kai assigned to 301 Hikotai (above left)
- F-4EJ modernized to RF-4EJ Kai standard assigned to 501 Hikotai (above right)
- RF-4EJ Kai assigned to 501 Hikotai (below left and right)



with more aircraft until the squadron is completely at full strength. On April 9, 2019, the JASDF lost its first F-35A, when one of the 302 Hikotai's F-35As went missing over the Pacific Ocean. It turned out that the aircraft crashed due to pilot error.

Since the introduction of the RF-4 at the JASDF in 1974, the Air Force has had an excellent aircraft for the very important photo-reconnaissance tasks. On March 9, 2020, the JASDF ended flying the RF-4E *Phantom II* photo-reconnaissance version after 46 years. The Japanese Ministry of Defense plans to replace the old fleet of RF-4Es of the Tactical Reconnaissance Group with the hyper-modern F-35A and F-35B *Lightning II*. Japan is already flying the F-35A and will also purchase the F-35B in the future. With the phasing out of the RF-4E *Phantom II*, Japan lost its only photo-reconnaissance squadron in 2020. This task will be taken over by the F-15J *Eagle*. From 2007, Japan has an unknown number of F-15Js converted for the photo-reconnaissance. These Eagles can be equipped with Lockheed Martin Phoenix Eye SAR pod. With this pod, modern frontline combat aircraft can be converted into a photo-reconnaissance platform with minimal effort. The future for the 501 Hikotai is still unknown. Whether the unit will be converted to a squadron operating the F-35 has not yet been decided by the Japanese government.

Today, the 301 Hikotai is the only unit that still flies with the F-4EJ Kai. This unit will also start the transition to the F-35 very quickly year. Like the 302 Hikotai, the 301 Hikotai will be moving from Hyakuri AB to Misawa AB in northern Japan. It is not yet certain what will happen to Hyakuri AB. There are plans to base a squadron with the Mitsubishi F-2 at this airbase. What is certain is that 2020 will be the last year in which the *Phantom* will fly in the country of the rising sun. The delivery of new F-35A *Lightning II* aircraft will continue as usual. They are manufactured under license in Japan by Mitsubishi Heavy Industries. Japan plans to purchase a total of 157 F-35s. This batch consists of 115 F-35A *Lightning IIs* for conventional deployment and 42 F-35Bs for deployment at sea.



F-35A assigned to 302 Hikotai