Military Helicopters in Czechoslovak Aeroclubs Between 1963–1974

Vojtěch Hájek / vojtech.hajek@gmail.com
Department of Economics and Management, University of Chemistry and Technology, Prague, Czech Republic

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In mid-fifties helicopters were already an indivisible part of military air forces all over the world. In terms of the Warsaw Pact the army of Soviet Union and subsequently its satellite states got the first helicopters. In 1956 Czechoslovak military air force also received the first Mil Mi-4 helicopters. Since 1959 Mi-1 light helicopters were used for pilots training, however, in early sixties there was a shortage of backup pilots within military units. The only Czechoslovak liaison helicopter regiment did not manage to train its own pilots, much less backup pilots. Therefore, unused military helicopters HC-102 were incorporated into Svazarm aero clubs (Svaz pro spolupráci s armádou - The Union for Cooperation with The Army). Flying with Mi-1 started in 1965. In course of eleven years a huge number of pilots were trained within aeroclubs, which cooperated with military air force, to join the army in case of need. In 1974 the conception of backup pilots training in aeroclubs was re-evaluated and finished. The numerous group of pilots then got occasional trainings at army till early eighties and many of the pilots were finally employed at the police, air force or in civil sector.

Key words**:** *Svazarm, communist Czechoslovakia, helicopters, military training, aeroclubs*

Introduction

The world has been divided into East and West since the end of the 1940s. After World War II, technology advanced rapidly, a development reflected in the armament of each side's armies. Alongside atomic weapons and jet planes, helicopters emerged. Their brief deployment in German and American forces at the end of World War II showed their potential. The United States of America was a leading country in the development and deployment of helicopters in the early 1950s. The deployment of helicopters during the Korean War (1950–1953) in transport and rescue roles was a significant impetus in the development of this technology

also in Soviet Bloc countries. The development of helicopters took place mostly in the Soviet Union. Czechoslovakia was the only country of the Eastern Bloc where the development of helicopters reached serial production. At the beginning of this story, it was necessary to train the army reserve helicopter pilots in the aeroclubs of Svazarm (The Union for Cooperation with The Army)[1]. This training in the Czechoslovak aeroclubs was totally unique within the Soviet satellites.

Literature Review

A diverse range of material, especially of Czech or Slovak provenance, was used when processing this paper. Documentation on the activities of The Union for Cooperation with The Army are to be found in the National Archives in Prague. Military matters are administered by the Military Central Archive, especially Military History Archive. Here, in the documents of The Ministry of Defence dating back to 1950-1964, we can obtain information about the development of Czechoslovak helicopters, the arrival of military helicopters to Czechoslovakia, and the first indication of the handing over of military helicopters to aeroclubs. Termination of its activities is documented in the records of the State Defence Council in the National Archives in Prague. There is almost no literature on this subject, only articles in periodicals, such as the Aviation and Cosmonautics magazine. There is only a very small number of documents in the archives regarding the activities of individual aeroclubs. For this reason, it is important to use documents held by aeroclubs or to apply oral history methods.

Military and Police Helicopters in Czechoslovakia

Since its inception in 1918, Czechoslovakia has been profiled as an industrial state with a strong emphasis on aviation industry. After 1945, there were two important lines of helicopter aviation in Czechoslovakia. The first line was the development of its own helicopters, culminating in the serial production of types HC-2 and HC-102 at the end of the 1950s and in the early 1960s. Because of the lengthy development,

[1] The Union for Cooperation with The Army, abbreviated as Svazarm, was a paramilitary organization under the control of the Communist Party and the government of technical sports. It was created on the basis of Act No. 92/1951 Coll., adopted by the National Assembly on the 2nd November 1951. According to § 5 of the Act, Svazarm was established as a professional volunteer organization for the organization, management and control of military education in ten volunteer organizations that became collective members. At the end of 1952, there was a complete integration of individual organizations that had practically ceased to develop a separate activity. Bílek, K. – Krobath, J. – Krupicka, J. (1991). *Svazarm 1951–1991*, Praha: manuscript – unpublished text.

problems with engines and the import of Soviet helicopters, there was no serial production of the prospective types HC-3 or HC-4.[2]

After the end of World War II, two German helicopters – Focke-Achgelis Fa 223E Drache[3] – were left on Czechoslovak territory. They were brought into workable condition in the second half of the 1940s and provided Czechoslovak pilots and later designers with a great deal of experience.[4] The same process took place throughout Europe and in the USA. Attempts to buy the American Bell 47B[5] helicopter in 1947 were unsuccessful. After the communist coup of February 1948, Czechoslovakia became a Soviet satellite.[6] Despite this, local technical development remained in many respects autonomous until 1968 and 1969.[7] At the turn of the 1940s and 1950s, aircraft designers in Czechoslovakia sought to build on pre-war traditions and, as in the 1920s and 1930s, sought to gain theoretical knowledge and practical experience in all areas of aviation, including helicopter construction.[8]

Helicopter manufacture began in the Soviet Union in the first half of the 1950s. In comparison to the NATO states, the Warsaw Pact troops received helicopters after some delays.[9] First, the Soviet Union pursued large-scale serial production, but in the late 1950s it passed the manufacture of light helicopters to Poland and only kept the manufacture of heavy and combat helicopters. The Mil Mi-4[10] transport type under the codename "NATO Hound" became a very important helicopter.[11]

The Czechoslovak Ministry of National Defence decided to purchase the NATO Hound for The Czechoslovak People's Army in 1955. In March 1956, the first four arrived at Prague-Kbely Airport. Soviet instructors began training selected pilots of the 1st Transport Air Regiment.[12] The pilots were selected from among experienced transport pilots with experience in the Douglas C-47 or Lisunov Li-2.[13] The second group were pilots from the defunct squadron of transport gliders. It was a great paradox that the Czechoslovak military pilots had no experience with training

[2] Nemecek, V. (1984). *Ceskoslovenska letadla 1945-1984,* Prague: Nase vojsko, 118–127.

[3] Coates, S. (2002). *Helicopters of Third Reich,* Hersham: Crecy Publishing, 100–115.

[4] Irra, M. (2011). Unikáty cs. vojenskeho letectva – Focke-Achgelis Fa 223 (VR-3), *Hobby Historie* 2, 18–27.

[5] Spenser, J. P. (1998). *Whirlybirds a history of the U.S. helicopter pioneers*, Washington: Univ. of Washington, 217-221.

[6] Dubanek, M. (2010). 'Bell 47B a Ceskoslovensko, *ATM* 42, 82.

[7] More: Nemecek, V. (1984).

[8] Nemecek, V. (1983). *Ceskoslovenska letadla 1918–1945,* Prague: Nase vojsko,

[9] More: Richardson, E. (2017). *NATO, the Warsaw Pact, and the Iron Curtain (Cold War Chronicles),* New York: Cavendish Square Publishing.

[10] More: Fojtik, J. (2011). *Víceúčelový vrtulník Mi-4/Mi-4 Multipurpose helicopter,* Nevojice: Jacab.

[11] Crosby, F. (2016). *The Word Encyklopedia of military Helicopters*, London: Lorenz Books, 182–183.

[12] Rejhon, B. (1996). Přes epizodní kluzáky k vrtulníkům, *České letectvo a PVO* 2/6, 24–26.

[13] Šimek, K. (1996). Patřily mezi první, *České letectvo a PVO* 3, 26–27.

helicopters and started flying directly in the Mil Mi-4.[14] At the end of 1958, the 50th Liaison Air Regiment at Klecany Airport, north of Prague, obtained all the helicopters. It was also this unit that received the first Mi-1 helicopters at the beginning of 1959 and was responsible for the training of the liaison air force reserve pilots.[15]

The Beginnings of Operations in the Civil Sector

After World War II, helicopters in Czechoslovakia were owned only by the military or police.[16] The first civilian helicopters emerged in Czechoslovakia in the early 1960s. In 1957, a company called Agrolet, was established as a part of Czechoslovak Airlines with the purpose of engaging in aerial work, in particular in the operation of agricultural aircraft. In the late 1950s, a decision was made to equip Agrolet with helicopters, which were supposed to be assigned to do checks on high-voltage power lines, geological surveys, aero taxi services, construction activities, and the transportation of cargo and patients between hospitals, etc. Two Czechoslovak HC-102 helicopters were to be purchased for training activities. The management of Agrolet considered purchasing up to ten Czechoslovak-produced HC-3 helicopters as aero taxis, for light cargo transport, for checks on high-voltage power lines and for geological surveys. The last type was the Mil Mi-4 Soviet helicopter, numbering three pieces, for construction activities and the transport of heavier cargos.[17]

The situation was complicated by the very lengthy development of the HC-3 helicopter, the main problem of which was its propulsion unit that was still in the prototype stage. Further development of this helicopter was slowed by pressure from socialist states, which promoted the development of helicopters only in the Soviet Union and Poland. Finally, at the end of 1960, a compromise solution was reached. The most suitable and, actually, the only candidate for the role of light helicopter appeared to be the Soviet Mil Mi-1, with which the Czechoslovak People's Army (CSLA) was equipped at that time. Use of the HC-102 was no longer considered and the Soviet Mil Mi-4 remained the aircraft-of-choice in the role of heavy helicopter.

Based on agreement between Czechoslovak Airlines and the Ministry of National Defence, two Mil Mi-1 helicopters and two Mil Mi-4 helicopters were transferred from the Czechoslovak People's Army to Agrolet.[18] Four pilots and eleven ground

[14] Fojtík, J. – Červíček, F. (2009). První „Čtyřky", *Letectví a kosmonautika* 85/12, 70–74.

[15] Povolný, D. (2014). (eds.). *Historie československého a českého vrtulníkového letectva od roku 1945 po současnost* Prague: Ministerstvo obrany, 80–81.

[16] The only exceptions were helicopter prototypes at The Czech Aerospace Research Centre in Prague-Letňany and Moravan Otrokovice (author's comment).

[17] Regional Archive in Prague, found Československé aerolinie (Czechoslovak airlines), box no. 184, Komentář k sestavě 3. pětiletého plánu (1959).

[18] Trebichavský, F. (1965). *Použití vrtulníků v národním hospodářství: Přednáškový text pro účastníky celost. techn. besedy poř. v 1. čtvrtletí 1965 v Praze,* Praha.

personnel also transferred from the army. These fifteen workers were the first helicopter personnel in the Czechoslovak civilian sector, except for test pilots at The Czech Aerospace Research Centre in Prague-Letňany and Moravan Otrokovice.[19] From the early 1960s, the crews of these helicopters were engaged in various activities. In addition to the above-mentioned aerial work, both the supply of mountain huts and of mountain rescue services in the Slovak Tatras were tested. These flights at a high altitude showed the limits of Soviet-made piston helicopters. For this reason, from the mid-sixties, when there was a period of political easing, efforts were made to purchase turboprop Sud Aviation / Aérospatiale SA-3160 Alouette III helicopters. The project eventually remained unimplemented.[20]

The operation of Mi-1 helicopters had survived a catastrophe during a geological survey, several damaging incidents, and one flight over the so-called Iron Curtain,[21] until the early seventies. In contrast, the operation of Mi-4 helicopters was terminated in 1967 because of their unsuitability, especially their insufficient load-carrying capacity during construction work. Between 1961 and 1969, Agrolet gradually operated a total of three Mil Mi-1 helicopters with registration codes OK-OVC, OK-OVD, and OK-OVG, and three Mil Mi-4 helicopters with registration codes OK-OVE, OK-OVF and OK-RKA.[22] The personnel base was established by former members of the Czechoslovak People's Army, who were gradually supplemented by pilots trained in Svazarm aeroclubs. Under the framework of the post-1968 society-wide changes, which, among other things, resulted in the federalization of the Czechoslovak Socialist Republic, Agrolet was transformed into a separate company under the name Slov-Air and based in Bratislava.[23] It is in particular the aerial work in Agrolet, and subsequently in Slov-Air, that shows the connection of the Czechoslovak People's Army with the civilian sector, a consequence of the militarization of society in a communist-style totalitarian state.

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[19] Military Central Archive - Military History Archive, found Ministry of National Defence year 1961, inventarization no. 793, box no. 260, Dohoda o převodu vrtulníků od MNO k ČSA (1961).

[20] Sveton, P. (2009). *Vrtuľníky nad Tatrami – malé dejiny leteckej záchrany*, Martin: Matica slovenská, 26.

[21] On 21st October 1965, a former military pilot and employee of Agrolet, Jan Němec, took off in the Mil Mi-1 helicopter OK-OVG from the Ivanka Airport, Bratislava, to check high-voltage power lines. After refuelling in Břeclav, he was supposed to fly to the starting point of the inspection, where he was supposed to pick up power plant engineers. However, the pilot crossed the Czechoslovak-Austrian border between Břeclav and Vienna and then continued at low-altitude to the West. He planned to fly all the way to Munich, but a lack of fuel forced him to land at Lake Cheimsee in the Federal Republic of Germany. He subsequently applied for political asylum. More can be found in Pejskar, J. (1992). *Útěky železnou oponou (Escapes through the Iron Curtain),* Prague: Melantrich 1992, 38–39.

[22] Civil aviation autority of Czech republic (CAA), Historical materials of aircraft register, book of powered aircraft no 3 [online], [cit. 2021-08-18]. https://cloud.caa.cz/index.php/s/QaEutO6Zq04ysaL

[23] Slovak National Archive in Bratislava, found Slov-Air, inventarization no. 1, box no. 1, *Zrušení odštěpného závodu Československých aerolinií Agroletu* (1969).

Helicopters in Aeroclubs

The arrival of helicopters to the Svazarm aeroclubs was inherently associated with the HC-102[24] and Mil Mi-1. The Czechoslovak HC-102 helicopter resulted from a long-term development carried out by a group associated with Ing. Jaroslav Šlechta in the aviation department of the company Praga. After initial unimplemented studies, the first experimental helicopter XE-II, which took off in 1950, was created. The XE-II operation brought invaluable experience of standard helicopter arrangement, i.e. with a main rotor and balancing propeller.[25] In 1951, helicopter construction was transferred to Aero Vysočany, where the development of a two-seat helicopter, the HC-2, began. The Czech Aerospace Research Centre in Prague Letňany took over the completion of the whole project.[26] From 1956, negotiations were held about the HC-2 serial production in Moravan Otrokovice. In addition to two prototypes, 15 serial pieces were manufactured during 1958. The manufactured HC-2 were taken over by The Czechoslovak People´s Army, or more precisely by the 50th Liaison Air Regiment in Klecany. Each piece logged 50 hours of flight time[27] and was then taken to a factory where it was rebuilt and adapted into the HC-102. This modernization consisted mainly of replacing the weak Praga DH engine, with a wattage of 62 kW (84 k), with the M-110H, with a wattage of 81 kW (110 k), and other minor modifications.[28]

Development of the Michael Leontijevic Mil helicopter, denominated the GM-1, began in 1947, and the first prototype took off a year later. It was the first mass-produced helicopter in the USSR. This three-seat helicopter was constructed in a classical arrangement, i.e. with a three-bladed main rotor and a three-bladed balancing propeller. The star seven-cylinder engine of the Ivchenko type AI-26GR with a wattage of 422 kW was located behind the crew cabin. Production in the USSR began in 1950. By 1960, a total of 1012 Mil Mi-1 pieces had been manufactured at several production sites. The USSR's military air force used this type primarily for liaison and transport tasks. An important non-military user was the so-called DOSAAF,[29] whose aeroclubs used the Mi-1 from 1956[30] mainly for basic and continuing training, and organized the USSR helicopter championships from

[24] Apostolo, G. (1984). *The Illustrated Encyclopedia of Helicopters,* New York: Crescent, 191.

[25] Benes, L. (1998). *Československé vrtulníky známé i neznámé: historie, projekty, prototypy,* Olomouc: Votobia, 62–67.

[26] More: Vokoun, V. (2006). *Jak jsme zkoušeli vrtulník HC-2 a co všechno se při tom stalo,* Prague: VZLÚ.

[27] Povolný, D. (2014). 100.

[28] Chmura, F. – Kutek, J. (1961). Motor M-110H, *Křídla vlasti* 10/26, 14–15.

[29] Volunteer Society for Cooperation with The Army, Aviation, and Navy (russian ДОСААФ, Добровольное общество содействия армии, авиации и флоту). It operated between 1951–1991 (author's comment).

[30] Forman, I. (1956). Dosaafovci létají na vrtulnících, *Křídla vlasti* 5/24, 749.

1958.[31] Between 1956 and 1965, a licensed production took place at Polish production plant "WSK PZL Swidnik".[32] A total of 1594 helicopters, internally designated the SM-1,[33] were manufactured in Poland. This was followed by the SM-2 - the main difference being the redesigned cabin for four passengers and a pilot. The Mi-1 helicopter is also known as the NATO "Hare".[34]

A total of 72 helicopters of types HC-102 and Mil Mi-1 were acquired by Svazarm. These served the helicopter pilots between 1963 and 1974. The system of classifying helicopters, i.e. license plates, had clear rules. The first two letters "OK" designate nationality. However, more interesting are the other letters after the dash. The first letter after the dash refers to the year of manufacture, the second letter indicates a category (for helicopters often V or U), and the third letter shows the order in the series, or the year of production, or the entry into the Aircraft register at the Civil Aviation Authority.[35]

Arrival of Military Helicopters to Aeroclubs

Until the beginning of the 1960s, helicopter flights in Czechoslovakia were the domain of military units. However, the idea of helicopter operations at aeroclubs was not totally unexplored. The Soviet Union had been operating helicopters in aeroclubs since 1956. Pre-military training of future combat pilots or pilots of the transport company Aeroflot occurred within DOSAAF.[36]

1962 became a breakthrough year for the inclusion of helicopters into the Svazarm aeroclubs. It was this year when problems with the preparation and training of military liaison pilots began to show. The 50th Liaison Aviation Regiment typically prepared pilots of normal aircraft using four to five two-month tours (cycles). The preparation of military helicopter pilots faced long-term personnel and material deficiencies. Mi-4 training was expensive and unnecessary, and there was a shortage of Mi-1 training helicopters. Training for military helicopter pilots was being delayed and the regiment did not have the capacity to train reserve helicopter pilots. For this reason, the Commander of Training, Lt. Jiří Mates, suggested transferring the training of reserve pilots to the Prešov Aviation School or to aeroclubs of Svazarm.[37] Ironically, it was the reluctance of The Czechoslovak People's Army to

[31] Hrbac, B. (1960). Druhé vrtulníkové mistrovství v SSSR, *Křídla vlasti* 9/1, 7.

[32] Ahner, H. (1959). Polský vrtulník SM-1, *Letecký obzor* 3/6, 176–177.

[33] More: Grzegorzewski, J. (1975). *Śmigłowiec Mi-1,* Warsaw: Wydawnictwo Ministerstwa Obrony Narodowej.

[34] Crosby, F. (2016). 178–179.

[35] Civil aviation autority of Czech republic (CAA).

[36] Hrbac, B. (1960). 7.

[37] Military Central Archive - Military History Archive, found Ministry of National Defence year 1962, inventarization no. 221, box no. 72, *Požadavky k zabezpečení výcviku osádek vrtulníků – oznámení* (1962).

take over the Czechoslovak HC-102 helicopters, as they appeared to be unpromising, that contributed to the implementation of the above-mentioned solution. The main criticism was that this type of helicopter was very light and vulnerable, suitable only for liaison purposes. Under the conditions of the Caribbean crisis, the Communist government of Czechoslovakia decided in the second half of 1962 to hand over all HC-102 helicopters to train pilots in aeroclubs.

Pic1 – HC-102 helicopter at Jaromer airport (Propriety of Josef Vanek).

The transfer of helicopters HC-102 from The Ministry of Defence to Svazarm was discussed at Svazarm´s management meeting within the Action Plan for the training year 1962/1963, from the 31st October, 1962. The decision to allocate the

HC-102 helicopters to the aeroclubs of Svazarm included an initial plan to train a preliminary number of 70 reserve liaison pilots. Already by this point, the HC-102 was considered a transient type meant for retraining to more complicated (combat) helicopter types, e.g. Mi-1 or Mi-4, as the supply of military helicopters was running at an increased pace.[38]

Human Resources

During the spring of 1963, the first Svazarm pilots were trained in helicopters. The first three pilots and future instructors were Jiří Černý, Zdeněk Dědek and Jiří Tomeš, who all underwent basic helicopter training in Moravan Otrokovice. The memoires of Gustáv Schimik's imply that it was a quick matter, as some selected instructors often did not know what task they had been selected for. In the early 1960s, the third five-year plan[39] collapsed, resulting in reduced subsidies for sports aviation. This meant the reorganizing of aeroclubs and decreasing the number of powered aircraft, pilots, instructors and generally employees. For many of them, helicopters became the only means to keep flying. After completing a ten-day course at the manufacturer and logging approximately five flight hours, each graduate was assigned his own helicopter and flew it to his home aeroclub, where he was given the task of logging another 20 flight hours and beginning the retraining of pilots selected by the military administration.[40] Other trained instructors František Novák and František Šmehýl undertook a theoretical course in Moravan, but they were already flying in Vrchlabí. The departure of five HC-102 helicopters to Vrchlabí took place on 11th June, 1963, on the route Otrokovice - Moravská Třebová - Hořice - Vrchlabí.[41] Led by the first five instructors, the first helicopter course in Vrchlabí took place in June 1963, attended by instructors: Zdeněk Doktor, M. Flašík, Miroslav Kobr, Křenek, Josef Lesák, Josef Polívka, and Břetislav Šoch.[42]

Plans and Reality

Helicopters were mainly distributed to those regional airports in which the management of the regional aeroclubs resided (e.g. Liberec, Brno-Slatina, Pilsen-Bory, České Budějovice-Hosín, etc.). In the order of classification, these airports were

[38] National Archive in Prague, found Svazarm, box no. 39, inventarisation no. 149, *Předložení plánu činnosti leteckého úseku Svazarmu na výcvikový rok 1962/1963*.

[39] The socialist economy was guided by a plan for certain periods, most often five-year plans (author's comment).

[40] Schimík, G. (2000). Heli Baby a Robinson, *Letectví a kosmonautika* 76/13, 13–15.

41 Doležal, A. (1963). Úkol splněn: 20. prosince předán poslední vrtulník, *Naše křídla – noviny zaměstnanců závodu Moravan v Otrokovicích* 2/1, 1.

[42] Hemlich, K. (1963). Nový kurz pro staré piloty, *Křídla vlasti* 12/17, 482–483.

designated as so-called Class I Airports, where training in all possible aviation competences of regional significance was provided.[43] Plans to train military aviation reserve pilots in the Svazarm aeroclubs were more optimistic. The developments of 1963 already showed a certain delay in this plan, and the plan was subsequently revised. During the presidency meeting of Svazarm on 24th February 1964, flight activity on helicopters was evaluated and unlike other categories of air force reserves of The Czechoslovak People´s Army, the training plan was not fulfilled. Only the theoretical part of the curriculum was completed by the required number of pilots in the first training year. Training was prolonged considerably due to two major accidents, which led to an increase in the number of flight hours of instructors. In 1963, the aeroclubs trained only 11 instructors, and the training of other cadres was moved to 1964.[44]

Pic2 – HC-102 helicopter at Kladno airport with white-blue-red color combination (Propriety of Jason Kucera).

[43] National Archive in Prague, found Svazarm, box no. 37, inventarisation no. 148, *Řád aeroklubů Svazarmu* (1962).

[44] National Archive in Prague, found Svazarm, box no. 45, inventarisation no. 160, *Zhodnocení koncepce letecké činnosti přijaté IV. plenárním zasedáním ÚV Svazarmu a návrh dalších opatření na leteckém úseku* (1964).

This delay was mostly due to three factors. The first factor was the inexperience of pilots with this aviation technique in 1963-1966. The professional quality of the instructors grew steadily, but reached the required level with some delay. The second factor was of a financial nature. From the beginning of the 1960s, sport aviation funding was gradually reduced. Each aeroclub gained funds by self-supporting activities, but they also introduced partial reimbursement of the financial costs of flight hours incurred by pilots. It was only now that the aeroclubs set the price of flight hours for powered aircraft and helicopters. At the beginning of helicopter operations at aeroclubs, the idea of pilots meeting the planned 20-hour flight standard under the condition of their partial participation in the financial costs was not successful. Pilots argued that they did not consider helicopter activities sports flying and pointed to their listing as reserve soldiers required to defend the country and fulfil tasks for The Czechoslovak Ministry of National Defence. Furthermore, some of the pilots were also qualified powered-aircraft pilots, and preserving this qualification was more important to a large number of them. The third factor was the necessity to place helicopter equipment only at selected airports, a fact that excluded exploiting the interest of potential pilots from more remote aeroclubs.[45]

Allocation of Mi-1 Helicopters

From 1963, the aeroclubs used the Czechoslovak HC-102 helicopters for training purposes. All 35 manufactured pieces were allocated to the aeroclubs on the condition that the centre of training be in the Czech regions. Nevertheless, the HC-102 helicopter was perceived from the beginning to be a precursor for training in the Mil Mi-1 type, which was the standard armament of the Czechoslovak People's Army.

The re-training of the first pilots from the Svazarm´s aeroclubs took place from the 22nd February to the 9th March, 1965, at the 1st Aviation School Regiment in Prešov, and was led by military instructors. These pilots were Jiří Černý, Zdeněk Dědek, M. Flašík, Miroslav Kobr, František Novák, Josef Polívka, František Šmehýl, Břetislav Šoch, and Jiří Tomeš. In the autumn of the same year, the Military Air Force delivered to Svazarm the first Mi-1 in the Mi-1M and Mi-1MU versions. The participants of the Prešov course became instructors and taught a number of helicopter pilots to fly the Mil Mi-1 type. Subsequently, the Mil Mi-1 military helicopters began to be distributed to individual aeroclubs.[46]

[45] National Archive in Prague, found Svazarm, box no. 62, inventarisation no. 179, *Rozbor dosaženého stavu výcviku na vrtulnících a návrh na další plnění tohoto úkolu (1967).*

[46] Military Central Archive - Military History Archive, found no. 93 – 1st Training Aviation Regiment in Prešov (VÚ 6989), *Rozkaz velitel 1. leteckého školního pluku ze dne 31. března 1965, Přeškolovací kurz svazarmovců.*

Operation in Aeroclubs

The number of helicopter pilots increased gradually in 1967. Change was brought in 1968 and its later repercussions, especially in terms of personnel. After the events of 1968, after the so-called Prague Spring, Warsaw Pact troops entered the Czechoslovak territory on the 21st August.[47] This event led to further suppression of the aeroclubs´ operations, as was also reflected in the flight activities of helicopter pilots. From a data comparison obtained from pilots' logbooks, it is possible to learn that helicopter operations ceased after the 21st August and resumed not earlier than in the autumn months of the following year.

Pic3 – Probably last flying with HC-102 at Hořice airport in 1972 (Propriety of Josef Vanek).

Helicopter activities were first divided into 2 stages: the HC-102 was used for basic training and the Mil Mi-1 for continued training. Within the pilots' transfer between the HC-102 and Mi-1 helicopters, a complete training curriculum was not fulfilled - pilots were merely retrained in the next type during several flight

[47] More: Bischof, G. et al. (2010). *The Prague Spring and the Warsaw Pact Invasion of Czechoslovakia in 1968,* Lexington: Lexington Books.

hours. This procedure was primarily economically and organizationally more advantageous as future helicopter pilots were taught to fly in a simpler and operationally cheaper model. This practice was applied until the early 1970s, when a gradual decommissioning of the HC-102 began. The HC-102 helicopter began to be decommissioned from 1970 because of its "not-very-durable" construction and its deterioration.[48] The last flight probably took place in Hořice on the 30th October, 1972. It was Josef Vaněk, the then helicopter flight instructor of eastern Bohemia, who piloted the helicopter with the license plate OK-RXA.[49]

Alongside the decommissioning of the HC-102, aeroclubs were assigned the Mi-1 directly from military units. As standard, the HC-102 service took place in aeroclubs or at the manufacturer, but the Mi-1 had to undergo important checkups in military service centres, such as at Brno-Slatina, Havlíčkův Brod or in the Trenčín Aircraft Repair Company.[50] Aeroclubs gradually took over a total of 37 Mi-1 helicopters, of which 14 were the dual-control training variant, called the Mi-1U or Mi-MU.

At the beginning of the 1970s, the training of helicopter pilots began to increase. According to statistical data from the Aeroclub of The Czech Socialist Republic, a total of 154 pilots were trained in the Czech lands in 1972. These pilots completed a total of 3278 flight hours that year in a total of 28 Mi-1 helicopters. Preparation of reserve helicopter pilots took place in a thinned-out form until 1974, when it was terminated.[51]

Personnel

In addition to the allocation of military technology, connection with The Czechoslovak People's Army also manifested itself in the case of directives and curricula concerning personnel training. The civilian training curriculum was based on military regulation Let-3-20. It deals primarily with the selection of personnel, their training, administration and the flight activity itself, which is well described in the helicopter guidelines for aeroclubs known as V-VRT-1 to V-VRT-4. The individual directives were as follows:

V-VRT-1 - Curriculum of Helicopter Pilot Training,
V-VRT-2 - Mi-1 Helicopter Piloting Directive,
V-VRT-3 - Directive for Helicopter Operation and Training,
V-VRT-4 - Special Cases during Mi-1 Helicopter Flights.

[48] National Archive in Prague, found Svazarm, box no. 75, inventarisation no. 193, *Zasedání 12. předsednictva Federálního výboru Svazarmu dne 27. února 1970.*

[49] Hajek, V. (2017). Vývoj a využití vrtulníku HC-2/102, *Východočeské listy historické,* 38/1, 7–25.

[50] Androvič, S. (1987). *Letectvo v Trenčíně,* Bratislava: Alfa, 77–80.

[51] National Archive in Prague, found ČÚV Svazarm, box 24, *Informace o činnosti Českého aeroklubu Svazarmu* (1974).

At the beginning of the 1960s, aeroclubs had the opportunity to fly helicopters. The army envisioned an ideal candidate as a politically conscious man having completed basic military service, and who was not registered as a reserve powered-aircraft pilot. For this reason, pilots of gliders, who were not allowed to fly powered aircrafts (e.g. for capacity reasons), often enrolled for helicopter training. The second group consisted of pilots of powered aircraft, who underwent the helicopter re-training, a trend particularly evident in places without a strong background in aviation. In some aeroclubs, the culmination of qualifications (powered aircraft pilot and helicopter pilot) was considered undesirable, sometimes even dangerous, as several officials (according to the Air Force model) argued that it was not possible to fly "airplanes" and helicopters together. This claim was denied by, for example, the acrobatic group flying the JAK C-11 aircraft, whose two pilots flew standardly as helicopter instructors.[52]

Localization

Distribution of helicopters was based on regional establishment according to which the aeroclubs were organized. Helicopters were allocated to airports, which were the centre of motor-powered flight and could therefore provide a basic service. In this overview, Strakonice differs from the rest, as here helicopter pilot training arrived here with a new club headmaster from the Hosín Airport near České Budějovice. Here is an overview of airports by region, where the Svazarm´s helicopters operated:
Regional Aeroclub Prague (Praha-Letňany, Točná)
Central Bohemian Regional Aeroclub (Mladá Boleslav, Kladno)
North Bohemian Regional Aeroclub (Liberec)
East Bohemian Regional Aeroclub (Hořice, Jaroměř)
West Bohemian Regional Aeroclub (Plzeň-Bory)
South Bohemian Regional Aeroclub (České Budějovice-Hosín, Strakonice)
North Moravian Regional Aeroclub (Zábřeh ve Slezsku, Olomouc)
North Moravian Regional Aeroclub (Brno-Slatina, Otrokovice)
West Slovak Regional Aeroclub (Bratislava-Vajnory)
Central Slovak Aeroclub (Žilina, Lučenec)
East Slovak Regional Aeroclub (Košice)[53]

[52] Jaroslav Tomeš, Jaroslav Rákos and Antonín Dytrych together with Jaromír Kapras formed the famous Mladá Boleslav acrobatic BOX with four JAK C-11 aircraft, with which they performed in 1964–1971 at air-shows at home and abroad (e.g. Austria). At the beginning of the 1970s, not all aircraft were available. The last flights with "The Four" were accomplished in 1976 at the air-shows in Kunovice and Letňany (author's comment).

[53] Civil aviation autority of Czech republic (CAA).

Training in the Czech regions was different than in Slovakia. At the beginning, all HC-102 helicopters were gradually deployed to all aeroclubs throughout Czechoslovakia. According to a 1965 order of the Ministry of National Defence, the Mi Mi-1 helicopters were handed over to the aeroclubs only in Bohemia and Moravia. The reason was that the ministry and the command of the Czechoslovak People's Army still owned Mi-1 helicopters and considered them a reserve option for units on the border with the Federal Republic of Germany.[54] This shows that the activities of the HC-102 helicopters covered the entire Czechoslovak Socialist Republic, but a small number of Mil Mi-1s reached Slovakia only in the early 1970s, following the termination of the HC-102s' operations. It follows that the training of helicopter reserve pilots focused on Bohemia and Moravia. Another contradiction between official documents and reality was the deployment of helicopters. This division applied to the HC-102 helicopters in general in theory, yet not exactly in reality. The situation was different with the Mil Mi-1 helicopters. Military helicopters had a relatively complicated maintenance system, which very often forced each aeroclub to hand over their helicopters to military service centres. They often received another, already airworthy helicopter in place of the one being serviced; therefore, one piece could have passed through several aeroclubs.

Within the aeroclubs, every single helicopter can thus be found in each pilot's logbooks. Since 1963, the training of helicopter pilots took place at Prague-Letňany Airport. The first local helicopter pilot was Miroslav Kobr, who completed his training on HC-102 at the aviation school in Vrchlabí. The HC-102 helicopters, operated by the aeroclub, with registration codes OK-RVO and OK-RVU are documented in Letňany. The HC-102 helicopter OK-RVF was also located in Letňany but was available to Svazarm employees in high positions. The first Mil Mi-1 emerged in Letňany as early as 1966. Gradually, seven Mi-1s with registration codes OK-SVA, OK-MVF, OK-OVJ, OK-RUD, OK-PVE, OK-PVB, and OK-OVA, flew here. The second Prague airport where helicopters were operated was Točná. Helicopter flight is associated with the name of the director of the aeroclub, Milan Vanecek, who took up the position in 1972. Between 1972 and 1974, only Mi-1 helicopters with registration codes OK-UVE, OK-SVA, OK-MVC, OK-MVD, OK-PUA, OK-OVJ and OK-NVB flew here.[55]

As early as 1963, Jaroslav Tomes was the first instructor in Mladá Boleslav. Here, the HC-102 helicopters were registered with registration codes OK-RVT, OK-RVE, OK-RVZ, and OK-RXI, and later OK-RVO; the Mi-1 helicopters were registered with registration codes OK-PVG, OK-PVE, OK-MVC, OK -NVB, OK - PUA, OK - PUR, OK - OVJ, OK - PVN, and OK - SVA. The second centre in the central Bohe-

[54] National Archive in Prague, found Svazarm, box no. 54, inventarisation no. 168, Zdůvodnění rozložení vrtulníkového výcviku (1966).

[55] Milan Reichardt's helicopter logbook no. 2.

mia region was Kladno Airport. The pilots of Kladno started flying the helicopters in 1964 in Letňany. The first pilots and instructors were Zdeněk Běhounek and Josef Přáda. Many helicopters appeared at Kladno airport, for example the HC-102 helicopters OK-RVO and OK-RVU. A HC-102 with the registration code OK-RVU is a very interesting piece. Unlike most HC-102s (and Mi-1s of course) this one did not fly in classic military camouflage, composed of dark green on the upper surface and light blue on the lower one, but in a nice blue-white-red colour combination.[56] The most frequently operated Mi-1 helicopters in Kladno were OK-MVD and OK-PVN. Other Mi-1s that appeared in Kladno included OK-PUA, OK-PVE, OK-NVB, OK-PVG, OK-SVA, OK-MVD, and OK-RUD.[57]

Pic4 – Mil Mi-1 helicopter over winter Liberec city (Propriety of Jiri Cicvarek).

The centre of helicopter flights in North Bohemia was Liberec. The first instructor was Miroslav Majer,[58] who was later replaced by Miroslav Sázavský. Gradually, machines with registration codes OK-RVN, OK-RVY, and OK-RXH were assigned to Liberec, such as the HC-102 base helicopters. In addition to the above-mentioned

[56] Marova, E. (1970). Z aeroklubů – Kladno, *Letectví a kosmonautika* 47/7, 38.
[57] Josef Rýdl's helicopter logbook no. 1.
[58] Sazavsky, M. (1964). Z aeroklubu Liberec, *Křídla vlasti* 13/14, 447.

pieces, OK-RVZ, OK-RVT, OK-RVH, OK-RVE and OK-RVF also turned up in Liberec pilots' logbooks. The first Mil Mi-1 helicopter arrived in Liberec in 1971. By October 1974, there were Mil Mi-1 helicopters with registration codes OK-PVB, OK-RUD, OK-NVB, OK-PVN, OK-PUA, and OK-MVD in Liberec.[59]

Pic5 – Mil Mi-1 helicopter at Liberec airport (Propriety of Jiri Cicvarek).

In West Bohemia, training of reserve helicopter pilots was conducted at the Plzeň-Bory airport. As early as 1963, the first helicopter pilot, who was also an instructor, was Zdeněk Dědek. The first training flights in Pilsen started a year later with HC-102 helicopters – with registration codes OK-RVS and OK-RVD. Gradually, by the early 1970s, the logbooks showed the arrival of HC-102s with registration codes OK-RVO, OK-RVF and OK-RXA. The standard pieces of Mi-1 in Pilsen were helicopters with registration codes OK-PVF, OK-PUB, OK-MVF, and OK-OVA,[60] and the mysterious OK-SVS, which was probably a mistake in the logbook, as such a registration code was never registered with the State Aviation Inspectorate.[61]

[59] More: Prchal, J. (1995). *Aeroklub Liberec 1945–1995,* Liberec: Aeroklub Liberec.

[60] Jiří Bělohlavý's helicopter logbook no. 1.

[61] Matejovsky, J. (2003). Vrtulníkové létání v aeroklubu, Nn J. Kárník (eds.), *Letectví a město Plzeň – 4. část 1945–2002,* Plzeň: UNI 2003, 64.

In South Bohemia, helicopter flights took place at the airports of České Budějovice-Hosín and Strakonice. The start of helicopter operation at the Hosín airport was inherently connected with Jiří Jirmus, who began training in HC-102 helicopters at Plzeň-Bory airport under the leadership of Zdeněk Dědek. On April 23, 1964, he made his first take-offs in a helicopter with the registration code OK-RVS. Ivan Hrázdira became the second instructor. The standard HC-102 helicopters assigned to Hosin included those with registration codes OK-RVM and OK-RXA, and Mil Mi-1s with registration codes OK-UVD, OK-PVH, OK-PVF, OK-OVA, OK-SVC, OK -PVA, and OK-MVF.[62] In 1970, Ivan Hrázdira left Hosín for Strakonice, where he continued his helicopter instruction activities. The Mi-1 helicopters with registration codes OK-PVH and OK-PVA were among those documented in Strakonice.[63]

Pic6 – Mil Mi-1 helicopter over Strakonice airport (Propriety of Pavel Hulej).

In East Bohemia, helicopter flights took place at the Hořice and Jaroměř airports. Until the early 1970s, the centre of helicopter flight was Jaroměř, where most of the helicopters were located. After the removal of the HC-102s and the allocation of larger numbers of the Mil Mi-1s, the centre moved to Hořice. The beginning of

[62] Unnamed authors (1988). *Aeroklub České Budějovice 1923–1988,* České Budějovice: Aeroklub České Budějovice, 18–23.

[63] Kůs, M. (2003). *Aeroklub Strakonice*, In I. Parkosová (ed.), *Strakonice – vlastivědný sborník, díl 2. – kapitoly ze společenského života*, Strakonice, 201–206.

helicopter flight is associated with the name Josef Polívka. The first training flights began in Jaroměř in 1964. The East Bohemia Region was gradually assigned HC-102 helicopters with registration codes OK-RVK, OK-RVL, OK-RVX, and OK-RXB, and the afore mentioned OK-RXA. Mil Mi-1s with registration codes OK-PVJ, OK-PVA, OK-SVB, OK-RUB and OK-OVA flew in Hořice.[64]

In South Moravia, helicopters were operated by the aeroclubs Brno-Slatina and Otrokovice. The first helicopter pilot and instructor at the Brno-Slatina airport was František Novák, who flew with members of the local aeroclub as early as November 1963. The training in HC-102s was carried out on pieces with registration codes OK-RVC, OK-RVQ, OK-RVP, OK- RXF and OK-RXG. Flights in the Mil Mi-1s began in 1966 in helicopters with registration codes OK-OTH, OK-PVI, OK-PVL, OK-PVM, OK-MVA, OK-MVB, OK-OVI, OK-PVF, OK-UVB, OK-UVC and OK-UVF.[65] Brno was perceived as an important centre of Mi-1 helicopter flights, because, from 1964, it hosted the 24th Helicopter Regiment and an associated service centre for major repairs and revisions of Mi-1 helicopters based at the Cernosice airport.[66] The second airport where helicopter pilots were trained was the Moravan factory airport in Otrokovice, from which the local aeroclub also flew. The helicopter instructor of the local aeroclub was Vlastimil Bergr, a test pilot at Moravan Otrokovice. The activity was carried out until the late 1960s in HC-102 helicopters with registration codes OK-RVA, OK-RXE, and OK-RXF.[67]

In North Moravia, helicopters flew at the Zábřeh and Olomouc airports. In Zábřeh, the most important person from the perspective of helicopter flight was the pilot and instructor Břetislav Šoch, who retrained for the HC-102 in a course at Vrchlabi, in June 1963. At Zábřeh airport, there were HC-102s with registration codes OK-RVA, OK-RVJ, and OK-RXE, and later OK-RVQ. The Mil Mi-1 helicopters arrived very soon in the second half of the 1960s. These were their registration codes: OK-OTH, OK-MVB, OK-MVE, OK-PVM, OK-PVI, OK-OVI and OK-UVB.[68] The second airport was Olomouc. The first training flights began under the leadership of Bretislav Šoch and František Novák from Brno at the end of 1966. The training began directly in the Mil Mi-1s. Later Věnceslav Kadlčík became the local instructor. Mil Mi-1 helicopters with registration codes OK-PVI, OK-UVB, OK-OVI and OK-MVA were in Olomouc.[69]

As mentioned above, the training of helicopter reserve pilots was less intensive in Slovakia than in the Czech lands. Training took place in all Slovak regions. In

[64] Josef Vaněk's helicopter logbook no. 1.
[65] MUDr. František Šafránek's helicopter logbook no. 1.
[66] Minarik, M. et al. (2001). *Křídla nad Brnem*. Brno: Aeroklub Brno-Slatina, 36–39.
[67] Marek, J. (1968). Z Aeroklubů – Otrokovice, *Letectví a kosmonautika* 44/8, 42.
[68] Vladimír Jirka's helicopter logbook no. 1.
[69] Miroslav Rogl's helicopter logbook no. 1.

the Western Slovak Region, training took place at Vajnory airport in HC-102 helicopters with registration codes OK-RVH, OK-RVI, and OK-RXC. In the Central Slovakia Region, HC-102 helicopters flew at the Žilina and Lučenec airports with registration codes OK-RVB, OK-RVR, and OK-RVD. In the Eastern Slovak Region, helicopters with registration codes OK-RVG and OK-RVV flew in Košice.[70] As in the Czech lands, the HC-102 helicopters were gradually decommissioned in the early 1970s. The author has not yet found relevant documents on the assignment of Mil Mi-1 helicopters to Slovakia.

Termination of Operations and Military Training

Originally, the management of the central Svazarm aeroclub planned to continue the training of reserve pilots in the long term. An activity plan was created to reach until 1981 and counted on the gradual delivery of additional helicopters from units of the Czechoslovak People´s Army.[71] In 1970, the number of reserve pilots needed in the event of a war was specified. It was a ratio of 1.5 pilots and crew members for each helicopter. Society-wide changes in 1968–1969 and the subsequent so-called "Normalization" led to a decrease in the number of flight personnel.

On 9 September 1974, The Minister of National Defence, General Martin Dzúr, submitted to the National Defence Council a proposal to modify the preparation of reserve helicopter pilots of the Czechoslovak People´s Army. The number of reserve pilots was reduced to only 20%, i.e. 1.2 pilots per helicopter. The decision was made to maintain 90 out of a total of 210 reserve pilots within the CSLA to cover the war numbers within the air force and to no longer carry out the training and retaining of pilots in Svazarm aeroclubs. The plan was that selected pilots would be invited on military exercises once every three years. 40 was the upper age limit for helicopter pilots. The aforementioned 90 pilots represented a reserve of approximately one helicopter regiment. 60 pilots out of this number were selected to fly the Mi-4 helicopters, which had thus far formed the basic type of transport helicopter. The remaining 30 pilots were trained for the Mi-1 helicopters.[72]

The cancellation of helicopter operations in aeroclubs also had economic impacts. The Czechoslovak People´s Army employed a total of 41 people (instructors, mechanics, etc.) in aeroclubs they no longer needed. The second impact was the return of the remaining Mil Mi-1 helicopters to the military air force. Generally, the first generation of Soviet helicopters, i.e. the Mi-1 and Mi-4, had rotor-blade issues

[70] Civil aviation autority of Czech republic (CAA).

[71] National Archive in Prague, found ČUV Svazarmu, box no. 24, *Plán perspektivy motorové letecké techniky v Aeroklubu Svazarmu ČSR* (1974).

[72] National Archive in Prague, found The State Defence Council, box no. 22, Důvodová zpráva k návrhu a udržování záloh pilotů v letech 1975–1980.

- a short lifetime of 150 and 300 flight hours, respectively.[73] A lack of Mil Mi-1 rotor blades was probably one of the reasons that lead to the withdrawal of this type from Svazarm aeroclubs. All the remaining Mi-1 helicopters were moved to military bases at the end of 1974 and assigned to military units. During the following year, each of these helicopters´ registration codes was deleted from the aircraft register.[74]

Calling up the reserve helicopter pilots for military exercises was not something new. As early as 1965, the HC-102 instructors undertook a flying course in the Mi-1s at the 1st Aviation School Regiment in Prešov. This was carried out until the early seventies, when the Mil Mi-1s became the basic type of helicopter in aeroclubs. 1976 was the first year that selected pilots undertook military training. Selected pilots also began to fly the Mil Mi-4 helicopters in that year. For this reason, the year's trainings were three months long. By default, pilots were excused from their jobs and their wages were refunded.

All helicopter reserve pilots gradually received a military rank of lieutenant or higher. The second cycle of military trainings was in the year 1978. The military trainings were shorter this time, because proper training according to military orders and rules had been carried out by the reserve pilots two years earlier. The last year in which reserve pilots were called up for military training was 1980.[75]

From an organizational point of view, the Svazarm pilots were assigned primarily to liaison flights at selected military airports. It was Havlíčkův Brod (Vysočina Region), home to the 42nd Liaison Helicopter Flight;[76] Pilsen (West Bohemia), home to the 1st Liaison Helicopter Flight[77] and the 11th Helicopter Flight,[78] located at Pilsen-Bory, providing, unlike previous units, mainly air transport services with the Mil Mi-4 helicopters. In South Bohemia, the 4th Liaison Helicopter Flight was located at the Bechyně airport.[79] The only large unit in which the reserve pilots operated was the 51st Helicopter Regiment in Přerov (Central Moravia).[80] Training at this military unit, which was mainly devoted to the transportation of people and material on the Mil Mi-4s, was conducted differently. The theoretical training of the reserve pilots took place at the Military University in Košice (Slovakia). After a month of theoretical training, the pilots returned to the regiment, where they began flying the Mil Mi-4s.[81]

[73] Povolný, D. (2014). 9–10.
[74] Civil aviation autority of Czech republic (CAA).
[75] Vaclav Kořínek's helicopter logbook no. 1.
[76] Povolný, D. (2014). 201–202.
[77] Ibid. p. 197.
[78] Ibid. p. 203–205.
[79] Ibid. p. 198
[80] Ibid. pp. 160–179.
[81] Vaclav Kořínek's helicopter logbook.no. 1.

1980 was the last year that the reserve helicopter pilots were called up for military trainings. It was in this year that the military trainings ended. From the first half of the 1970s, the situation regarding the Czechoslovak People´s Army and the preparation of their reserves changed. There were several reasons to end military trainings. Probably the first reason was the gradual replacement of military helicopters. In the second half of the 1970s, the supplies of the light multipurpose turbine-powered helicopters of Soviet origin and Polish production, i.e. WSK PZL Mil Mi-2,[82] started arriving to the Czechoslovak People´s Army and gradually replaced the old Mil Mi-1s. In the same period, the number of Mil Mi-8 transport, turboprop helicopters,[83] which gradually replaced the old piston Mil Mi-4s, increased. For this reason, the Ministry of National Defence no longer planned to train reserve pilots in new helicopters, as a large number of pilots began to approach the upper-age limit of forty years old. The second and equally important reason was the gradual increase in the number of Mil Mi-2 helicopter pilots at Slov-Air,[84] a company dedicated to aerial work. These pilots, together with police helicopter pilots,[85] formed the basis of the reserve military pilots in the event of war. Another significant advantage was that police pilots and Slov-Air pilots were professional helicopter pilots who did not have long breaks from flying as pilots from Svazarm aeroclubs, where helicopter flights had not been in operation since 1975.

Conclusion

Helicopter flight at aeroclubs was terminated at the end of 1974. The State Defence Council, following the decision by the leadership of the Communist Party and Government, approved a change to the training concept of the Air Force reserve helicopters, including, among other things, a decision to keep 20% of the number of peacekeeping reserve pilots for the number of helicopters.[86] Training in the Svazarm´s aeroclubs was terminated for economic reasons, and The Czechoslovak People's Army decided to retain 90 out of 210 Svazarm pilots (of which 60 pilots flew the Mi-4 and Mi-8, and 30 pilots flew the Mi-1) as reservists, calling them every 3 to 5 years for a three-month long drill at the helicopter units. The last training attended by the aeroclub pilots took place in 1980.[87]

Helicopter flight was a very complicated process that solved the problem of employing inadequate helicopters, the need to increase the number of pilots during the

[82] More: Fojtik, J. (2008). *Víceúčelový vrtulník Mi-2/Mi-2 multipurpose helicopter,* Cheb: Svět křídel.

[83] More: Fojtik, J. (2009). *Víceúčelový vrtulník Mi-8/Mi-8 multipurpose helicopter,* Nevojice: Jacab.

[84] Kaličiak, M. Vrtuľníky podniku Slov-Air, *Letecký obzor* 29/6, 168–171.

[85] Fojtik, J. (2007). *Policejní vrtulníky,* Prague: Naše vojsko.

[86] National Archive in Prague, found The State Defence Council, box no. 22, *Důvodová zpráva k návrhu a udržování záloh pilotů v letech 1975–1980.*

[87] Ibid. *Návrh výcviku a udržování pilotů v roce 1975–1980.*

threat of World War III, and the achievement of faster and initially more effective training of reserve helicopter pilots. For eleven years, helicopters were an inseparable part of aeroclub operations, which ended in a similarly rapid way to how they had begun. From that moment, the only helicopters in use were in the army, in the police, and in the Slov-Air company, in which a large number of trained helicopter pilots found employment.[88]

This was a very unique way of operating military helicopters within Warsaw Pact countries. Except for the Soviet Union, where the situation was completely different, training in helicopters at aeroclubs only took place in Czechoslovakia. The attempt to increase the number of military helicopter pilots, both active and reserve officers, through training in civilian organizations under military surveillance, was successful. For these reasons, this story is a short, but very original, unusual and interesting chapter in the history of the Cold War.

Notes on contributor

Vojtech Hajek works at University of Chemistry and Technology, Prague Department of Economics and Management and he studies Ph. D. program Public History at the Charles university in Prague. He studied at the Technical University of Liberec, Master Specialization for Second Stage of Elementary Schools (Master studies: History - Geography) and single-subject History. He has been focusing on historical geography and modern technical history. Currently, He is working on history of post-war gliding and development of helicopters in Czechoslovakia.

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[88] Slovak National Archive in Bratislava, found Slov-Air, box no. 30, inventarisation no. 55, *Zoznam lietajúceho personálu v podniku Slov-Air* (1988).

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