ARMOURED PERSONNEL CARRIER SKOT AND ITS VARIANTS PRODUCED IN POLAND

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Abstract

The paper presents the history of designing the armoured personnel carrier SKOT and the cooperation between Poland and Czechoslovakia related to their participation in its production. The serial production of this vehicle is discussed as well as the extent of related involvement of the Polish defence industry. The article outlines the characteristics of respective variants of the personnel carrier, grouped into: basic, fighting, command and staff, and fire support vehicles. The paper describes the use of the vehicle by the Polish Armed Forces, with a special emphasis on its influence on the process of modernising the Land Forces and their adaptation to operations involving weapons of mass destruction.

Keywords:

armoured personnel carrier, SKOT, vehicle

INTRODUCTION

The armoured personnel carrier SKOT was the first modern fighting vehicle included on a mass scale in the equipment of the Polish Armed Forces in the post-war period. Its addition to the army's equipment was preceded by a period of intense search for a new type of fighting vehicle for the land forces that would meet the requirements of an atomic battlefield. Already in the mid-1950s it was recognised that the personnel carriers BTR-152, forming part of the materiel, did not meet the minimum expectations. Because of the lack of possibilities of acquiring a more modern vehicle the works on own designs were started, out of which the most promising solution was the



wheeled armoured personnel carrier TK-30, developed by a team of scientists from the Gdańsk University of Technology¹. Soon it turned out that its further development would require huge expenditure, the provision of which was well beyond the capacity of the state budget. At that time prototypes of the personnel carrier SKOT appeared in Czechoslovakia and the offer to produce it under licence in Poland, being an economically viable alternative, was quickly accepted. Over several years this vehicle became the basic type of fighting vehicle in the Polish motorised infantry. Owing to its modern design it was a part of the equipment of the Polish Armed Forces for almost 25 years.

In 2010, a monograph on the armoured personnel carrier SKOT was published in the Czech Republic, describing the history of its design². The publication focused, however, on the design works and variants produced for the needs of the Czechoslovak People's Army. It described the variants used by the Polish Armed Forces only in a general way. Thence, this article aims at supplementing the history of the personnel carrier and providing details related to its production and operation in Poland. It was possible since access was obtained to documents stored in military archives and in the Archive of New Files as well as to instructions held in the collections of the Central Military Library in Warsaw. Additional information, in the form of a report, was received from the chief designer and head of production at FCS Lublin (the Lublin Automotive Factory), where the vehicles were produced.

1. HISTORY OF THE DESIGN

The personnel carrier SKOT (Stredni Kolovy Obrneny Transporter) was developed at the end of the 1950s, in Czechoslovakia, on the basis of subassemblies of the Tatra T-138 truck and the prototype of the Praga S-360 truck³. The vehicle was designed to replace the OT-810, a half-track armoured personnel carrier, modelled on the German personnel carrier SdKfz 251. In its general appearance the SKOT resembled the BTR-60, a vehicle added to the equipment of the Soviet Army at the same time, but this resemblance was only superficial. The design solution adopted for dividing the hull was completely different and in the case of the SKOT it guaranteed significantly more security to the personnel in the landing troops compartment. The hull of the vehicle was airtight, so it could be driven through a contaminated area, which was particularly important in operations involving weapons of mass destruction. The landing troops compartment was located in the rear part of the vehicle, enabling soldiers to exit the carrier by the rear door. The vehicle was also provided with thicker armour plates and



The design team was headed by Prof. Mieczysław Dębicki. By the middle of 1960, the initial design of the personnel carrier with an 8x8 driveline system was developed, providing for the use of a planetary gearbox, hydropneumatic suspension and central tyre pressure control system. The vehicle was designed to carry twelve soldiers. *Koreferat projektu wstępnego transportera opancerzonego TK-30* of 9.07.1960, Centralne Archiwum Wojskowe (hereinafter CAW), 1350/68/646, sheets 602-667.

M. Burian, J. Dite, M. Dubanek, OT-64 SKOT. Historie a vývoj obrněného transporteru, Praga 2010.

J. Pudło, FSC Lublin - historia lubelskiej fabryki samochodów, [online] Avalible on the Internet: Internet, http://www.lubus.info/artykuly/41-lublin-miasto-infrastruktura/394-historia-lubelskiej-fabryki-samochodow (access 15.04.2014).

a diesel power unit, more economical and safer in operation. Owing to these advantages the personnel carrier SKOT was ranked higher than the BTR-60.

The design of the personnel carrier SKOT was developed in the Design Office of the K. Gottwald Automotive Plants (AZKG) in Prague. Miroslaw Splichal was its chief design engineer. The designing works were started in January 1958, on the basis of the tactical and technical requirements specified by the executive staff of the Czechoslovak People's Army. The project, coded A-105, was approved in January 1959. During its development the assumption was made to use, to the greatest possible extent, the subassemblies of the trucks produced in Czechoslovakia for army purposes. It concerned mainly the power unit of the Tatra T-138 and the power transmission system of the Praga S-360. In April 1960, in the Letnany Automotive Plants the first prototype of the SKOT, coded A-105-I (SKOT-I), was built and put to the test on the proving ground⁴. The majority of problems detected during on-road and off-road tests were related to the semiautomatic power transmission unit, Pragmatic, with a fluid coupling and gearbox, which experienced frequent breakdowns. After driving 3,075 km it was necessary to replace the whole unit. Consequently, it was determined that this unit was highly prone to failure and its wear and tear occurred too quickly. In November the vehicle was subjected to tests for resistance to heavy arms fire, calibre 12.7 mm, which were failed. In December an order was placed for a new hull, intended for the fourth prototype, with a thicker and modified armour plating. It successfully passed the tests in 1961. As a result of tests on the SKOT I it was established that some fundamental changes would have to be introduced in the subsequent prototypes, such as a higher power engine, modified power transmission system and improved power assisted steering system.

In September 1960, two subsequent prototype vehicles were built, SKOT-II and SKOT-III. In the SKOT-II a semiautomatic power transmission system of the Praga-Wilson type was installed, whereas in the SKOT-III, the improved version of the Pragmatic unit. The SKOT-III prototype was tested on the proving ground on the territory of Poland, and, then, it was subject to comparison tests with the personnel carriers BTR-60P and BRDM, carried out in the USSR. When the programme of trials and tests was completed, in September 1962, the fourth prototype of the personnel carrier was built, SKOT-IV, which took account of the results obtained during the site and field testing as well as of the remarks and proposals submitted by specialists from Poland and the USSR. The subassemblies which demonstrated the best performance in the previous prototypes were incorporated in this vehicle. The personnel carrier was equipped with the stronger Tatra T-928-14 engine and semiautomatic power transmission system of the Praga-Wilson type. This variant was adopted as a model vehicle intended for serial production. In July 1963, during the launch of the serial production of the vehicle, the works on its further modernisation and application of subsequent changes were started. It was planned to reduce its weight to 11 ton, increase the capacity of the fuel tanks to 300 I, adapt the engine to run on different types of fuel, extend the lifecycle of

⁴ V. Francev, Československé tankové síly 1945-1992, Praga 2012, p. 80 and 106.

the power transmission system and ensure the mileage between overhauls of 20,000 km. These improvements were implemented already in the course of serial production of the vehicle⁵.

2. COOPERATION BETWEEN POLAND AND CZECHOSLOVAKIA

In 1961, Poland became interested in the production of the personnel carrier SKOT. There was a need for a modern vehicle that would enable land forces to take part in operations involving weapons of mass destruction. According to the estimates, the ultimate demand of the land forces for personnel carriers of this type was at the level of about 4,500. Concurrently, it was believed that the launching of the production of this vehicle in Poland would contribute to the modernisation of the automotive industry, leading to the start of the production of large trucks and machines indispensable for the national economy. During the initial discussions regarding the personnel carrier SKOT it was suggested that Poland would produce armoured hulls, water propellers, winches, shock absorbers, and fuel, electrical and pneumatic systems, and carry out the final assembly of the vehicle. It was anticipated that the start-up of the production would take place in July 1963, and that 6,400 vehicles would have been produced by the end of 1965. It was assumed that the production would be launched in Jelczańskie Zakłady Samochodowe (the Jelcz Automotive Plants), because of their location close to the southern border, and the resultant savings on the transport of parts and subassemblies, as well as their considerable experience of manufacturing large trucks. Locations in other parts of Poland, characterised by the surplus of workforce, were also considered. In accordance with the assumptions, the start-up of production in the Jelcz Automotive Plants would require capital expenditure of about PLN 350 million, including 200 million for construction and installation works. The purchase of 240 machine tools, out of which 15% from Western countries, was planned. The anticipated employment was at the level of about 3,400 people and, therefore, PLN 130 million was to be allocated to ensure housing for the production staff. The value of annual production of the personnel carrier was estimated at PLN 5 billion⁶.

The decision on starting up the production in Poland was taken pursuant to Resolution of the Council of Ministers of the People's Republic of Poland no. 80/62 of 2 March 1962. In accordance with the resolution the assembly of personnel carriers was entrusted to Fabryka Samochodów Ciężarowych w Lublinie (FSC Lublin, the Lublin Automotive Factory), which was related mainly to the significant surplus of workforce in this area. On 27 March a joint committee started its works, aimed at coordinating the production of the SKOT. The Polish delegation was headed by Zygmunt Ostrowski, heavy industry deputy minister. The committee assessed the results of technical testing performed on the prototypes and the modifications made to the vehicle design. On



M. Burian, J. Dite, M. Dubanek, *OT-64 SKOT....*, p. 44-51 and 78; V. Francev, *Československé tankové síly* 2012, p. 104.

Materiał w sprawie uruchomienia produkcji nowych asortymentów uzbrojenia. Komisja Planowania przy Radzie Ministrów, Zespół Wojskowy, 20.06.1961, CAW 1806/92/1, sheet 398.

8 January 1963, a Polish and Czechoslovak agreement on sharing the production of the personnel carrier SKOT was signed. It stipulated the production of 8,600 vehicles, out of which 4,600 for Poland and 4,000 for Czechoslovakia⁷.

Polish design offices focused on the fine-tuning of some of the subassemblies of the personnel carrier SKOT. Ośrodek Badawczy Sprzętu Pancernego i Motoryzacji (the Research Centre for Armoured and Automotive Equipment) in Sulejówek, later renamed as Centrum Badań Techniki Pancernej i Samochodowej (the Research Centre for Armour and Automotive Technologies) worked on improving the quality and resistance of armour plates and the design of the main clutch and planetary gearbox, owing to which it was possible to eliminate defects delaying the start-up of production⁸. As a result of joint efforts the technology documentation was developed, indispensable for starting up the serial production at FSC Lublin⁹. In November 1963, the coordinating committee adopted the plan to start up the production of command and staff vehicles, SKOT R-2 and R-3, from 1966. In 1964, the works on the armed variant were started, with the assumption that a turret mounted on the personnel carrier TOPAS or a brand new design would be used. In December the joint committee agreed that the turret from the Soviet carrier BTR-60PB would be used for the carrier SKOT. The turret was to be produced in Poland¹⁰. The carrier SKOT was included in the equipment of the Polish Armed Forces and Czechoslovak People's Army in 1964. In the Czechoslovak army the vehicle was designated OT-64 SKOT (obrneny transporter wz. 1964).

3. PRODUCERS OF THE CARRIER SKOT

The final assembly of the carriers was performed at FSC Lublin. The factory was built from scratch in 1951, and in the years 1951-1959, it produced the truck Lublin-51, being a licenced variant of the GAZ-51. In total 17,479 such vehicles were manufactured. The experience gained during the production of the above vehicle made it possible to master, in a relatively short time, the technology for the production of the armoured personnel carrier SKOT and its final assembly. FSC Lublin produced also some elements of equipment for the SKOT, such as an air distribution unit for the filter and ventilation system, gear wheels for the turret, ammunition boxes, etc. A new production hall for assembling the carrier was built in FSC Lublin, having an area of 5,100 m² (Section B), with three departments: parts and subassemblies department, production department with a production line consisting of twelve machining stations and vehicle assembling

Notatka służbowa w sprawie uruchomienia w kraju produkcji średnich kołowych transporterów opancerzonych SKOT i bojowych wozów piechoty BWP-765 of 13.02.1969. Sztab Gen. WP. Archiwum Akt Nowych (hereinafter AAN), 237/V/764, sheets 36-37.

⁸ Z. Brudziński, W. Nerlo, W. Bohuszewicz, *Wkład WITPiS do rozwoju samochodów wojskowych*, "Informator WITPiS", Sulejówek 1987, p. 28.

⁹ Rozwój ludowego Wojska Polskiego w latach 1956-1980. Kierunki rozwoju techniki wojskowej i zabezpieczenia technicznego wojsk, Warszawa 1986, p. 17.

¹⁰ M. Burian, J. Dite, M. Dubanek, *OT-64 SKOT...*, p. 78-81.

department¹¹. The testing of finished vehicles took place on the proving ground belonging to the factory, located near Rogoźno. Field tests were performed on the abovementioned proving ground, on the specifically built obstacle course, and amphibious tests were carried out on Łukcze Lake. The vehicle-mounted armament was calibrated at the firing range near Świdnik. Having passed the trials and laboratory and field testing, and after finishing works were done, the carriers were delivered to the recipient¹². Apart from the assembly of the SKOT, carried out in strict secrecy, FSC Lublin produced the delivery van "Żuk", which, officially, was the only vehicle leaving this factory.

The basic elements and subassemblies of the carrier were manufactured by almost 100 domestic companies, cooperating with FSC Lublin¹³. Armoured hulls and turrets were produced by Huta im. Marcelego Nowotki (the Marceli Nowotko Smelting Plant) in Ostrowiec Świętokrzyski. Armour plates used for their production were manufactured by Huta Częstochowa (the Częstochowa Smelting Plant). For this purpose the most modern plate mill in Europe was built in this plant, producing metal sheets with an area of 100 m². Suspension elements, such as suspension arms, shock absorbers, springs, bearings and wheel rims, were produced by Huta Stalowa Wola (the Stalowa Wola Smelting Plant). Tyres for the carrier were made by Zakłady Stomil (the Stomil Plants) in Olsztyn¹⁴. The vehicle-mounted armament, i.e. the KPVT heaviest machine guns, and their guiding mechanisms, were produced at Zakłady Mechaniczne (the Mechanical Plants) in Tarnów. These plants started up the production of the above-mentioned machine guns within a period of only ten months. Optical sights were produced by Polskie Zakłady Optyczne (the Polish Optical Plants) in Warsaw¹⁵.

In the production of the personnel carrier SKOT the Czechoslovak side was initially represented by AVIA, which was merged with the K. Gottwald Automotive Plants (AZKG) in 1961, creating the Letnany Automotive Plants (AZ Letnany). The government of Czechoslovakia designated this company as the main coordinator for the production of the vehicle, possible modifications to its design and deliveries of subassemblies and parts for the carrier SKOT. In total 57 companies were involved in the production of respective subassemblies. They included, among others, the TATRA Koprivnice Factory, where engines and ancillaries were produced, the former K. Gottwald Automotive Plants in Prague, manufacturing gearboxes and transfer boxes, the Slovak Metallurgical Plants (SMZ) in Dubnica, delivering driving axles, and the Air Conditioning Equipment Plants (ZVVZ) in Liberec, where filtration and ventilation equipment was assembled ¹⁶. In terms of value the share of the Polish industry in the production of the carrier to-

¹¹ V. Francev, *Československé tankové síly...*, p. 120; Report by Mikołaj Polech, M.Sc., Eng., the chief designer for special production at FSC Lublin (in the author's possession).

Report by Andrzej Malinowski, Eng., the head of production of the personnel carriers SKOT at FSC Lublin (in the author's possession).

¹³ R. Żochowski, Jak powstają SKOTY, Wojskowy Przegląd Techniczny 1971, no. 7. p. 7-8.

¹⁴ Historia Huty Stalowa Wola, Stalowa Wola 1996, p. 3.

Kompanie akademickie. Gdański Fakultet Wojskowy 1947-1952, Warszawa 1997, p. 133-136.

¹⁶ M. Burian, J. Dite, M. Dubanek, *OT-64 SKOT...*, p. 72; Report by Mikołaj Polech, MSc, Eng.

talled about 48.5% in the case of a vehicle without a turret and 53.5% in the case of a vehicle with a turret¹⁷.

4. PRODUCTION OF THE CARRIER SKOT IN POLAND

In the years 1964-1968, pursuant to the concluded agreement, it was originally planned to produce 8,600 personnel carriers, out of which 4,600 for the Polish Armed Forces and 4,000 for the Czechoslovak People's Army. At the end of 1964, the government of Czechoslovakia notified the Polish authorities that it had reduced the number of carriers for their army, which was related to the planned start-up of the licenced production of the infantry fighting vehicle BMP-1. Thus, the Polish side was forced to adjust the number of carriers for the Polish Armed Forces, because of the balancing of mutual deliveries of parts and subassemblies. During the consultations held by the command of the Unified Armed Forces of the Warsaw Treaty Organisation it was decided that the Polish Armed Forces would receive 2,700 carriers SKOT up to 1970. In June 1965, a supplementary protocol to the agreement was signed, providing for the total deliveries of 2,500 carriers for the Polish Armed Forces and 2,178 carriers for the Czechoslovak People's Army by the end of 1969¹⁸. Having taken account of the economic conditions in the years 1966-1970, the number of carriers to be produced for the Polish Armed Forces was reduced to 2,200.¹⁹

The first three carriers SKOT left the production line at FSC Lublin on 12 October 1963, i.e. on the Polish Armed Forces Day, commemorating also the 20th anniversary of establishing the Polish People's Army²⁰. One vehicle was transferred to Wojskowy Instytut Techniki Pancernej i Samochodowej (the Military Institute for Armour and Automotive Technologies) in Sulejówek, the second one was delivered to the Czech army and the third one was left at FSC Lublin, as a test and model vehicle. One month later subsequent seven vehicles of the pre-production series were built. These vehicles were intended for military testing, to verify their tactical and technical features in practice. During these tests a number of defects were detected, which uncovered the need for introducing relevant design changes. The highest failure frequency was observed with regard to the clutch, power transmission system, water propellers and winch. The proper serial production started in May 1964. The number of produced carriers was gradually increasing, starting from six vehicles in May and ending with 120 vehicles in December, which was the target monthly production capacity. By the end of 1964, 250 vehicles were produced, out of which 50 for the Polish Armed Forces and 200 for the Czechoslovak People's Army. In the following years 900-950 vehicles were built on an annual basis.

Notatka służbowa w sprawie uruchomienia w kraju produkcji średnich kołowych transporterów opancerzonych SKOT, AAN 237/V/764.

¹⁸ Ibidem.

Wykaz planowanych dostaw uzbrojenia i sprzętu technicznego w latach 1966-1970, CAW 1806/92/3, sheet 411.

²⁰ C. Matuszek, *Od Lublina... do Lublina. Historia fabryki samochodów*, Lublin 2008, p. 235.

In 1965, pursuant to the provisions of the agreement, the armed variants of the vehicle were to be produced. According to the preliminary assumptions a turret used in the Czechoslovak vehicle OT-62 TOPAS was supposed to be mounted on the carrier SKOT. The turret was equipped with the 82 mm grenade launcher T-21 and a 7.62 mm machine gun. Development works were carried out with regard to a turret with a 23 mm and 30 mm automatic gun and a 7.62 mm machine gun. However, this project was ultimately abandoned²¹. In 1966, the armed variant of the vehicle started to be produced, designated SKOT-2A, in which the turret was borrowed from the carrier BTR-60PB, with the heaviest machine gun, a 14.5 mm one, and a 7.62 mm machine gun. Owing to this solution it was possible to ensure a higher level of standardisation of fighting vehicles within the Warsaw Pact. In 1967, the production of command and staff vehicles, the SKOT R-2 and R-3, was commenced. In 1969, the production of carriers intended as the equipment for the Polish Armed Forces and the Czechoslovak People's Army was finished. In February 1970, it was agreed that the vehicle production would be continued by 1971, to produce the total of about 6,000 vehicles. The serial production was finished on 22 July 1971, when the last vehicles left the production hall. In total 4,678 carriers were produced, including 2,500 for Poland and 2,178 for Czechoslovakia²².

After the serial production was finished, FSC Lublin continued works related to the modernisation of the previously produced vehicles to the SKOT-2AP variant, by mounting "anti-aircraft" turrets. Also the equipment needed for the construction of special variants was prepared, particularly for the command and staff vehicles. Already during the phase of its serial production the carrier SKOT was exported to other countries. In 1967, twelve carriers SKOT-2A were sold to Uganda, in 1969 and 1970, 255 carriers SKOT-2A and 72 carriers SKOT R-2, to Iraq, and in 1970, 57 carriers SKOT-2A, to Sudan. The export of the vehicle was continued also in the following years²³. In 1966, the price of the carrier SKOT was PLN 1.57 million, which translated at the then effective exchange rate amounted to USD 392,500²⁴.

5. VARIANTS OF THE CARRIER SKOT

Several variants of the armoured personnel carrier SKOT were produced for the needs of the Polish Armed Forces. Initially, these included only the basic vehicles, then the variants with vehicle-mounted armament were produced, followed by fire support, engineering support, recovery and command and staff vehicles. A vehicle with the inbuilt electro-acoustic equipment formed a special variant of the carrier. It was also planned to equip the mechanised units with a medical support variant of the vehicle, to be developed. Unfortunately, this project was not implemented, probably for cost-

V. Francev, Československé tankové síly..., p. 107.

Notatka służbowa w sprawie uruchomienia w kraju produkcji średnich kołowych transporterów opancerzonych SKOT ..., AAN 237/V/764, k 36; M. Burian, J. Dite, M. Dubanek, OT-64 SKOT. ... p. 93.

V. Francev, Československé tankové síly..., p. 132.

T. Szczerbicki, *Pojazdy ludowego Wojska Polskiego*, Czerwonak 2014, p. 461-462.

saving reasons. Only many years later, when the fighting variants of the carrier SKOT were already decommissioned from service in the Polish Armed Forces, a medical support vehicle was developed on its basis, called "Ryś-Med", which was used during the stabilisation mission in Afghanistan. However, this modernisation was too far-reaching to consider this vehicle as being one of the typical variants of the SKOT.

Basic vehicles – they were the first personnel carriers SKOT that left the production line at FSC Lublin. Initially, they were used as the basic type of equipment designed to transport motorised infantry. From 1965, they served as the basis for constructing the fighting and special vehicle variants.

SKOT-1 (SKOT S-260-1) – the basic vehicle without any vehicle-mounted armament, intended to transport the infantry to the battlefield and to carry out various ancillary tasks. It was equipped with a self-supporting hull, completely airtight and adapted to amphibious mode. The hull was divided into three compartments: steering, engine and landing troops compartments. The 8x8 driveline system comprised the Tatra 928-14 diesel engine with a power of 180 hp and a semiautomatic gearbox of the Praga-Wilson type. The vehicle could reach a maximum speed of up to 90 km/h and up to 9 km/h in amphibious mode. The carrier was equipped with a filtration and ventilation device enabling it to move through the contaminated area and a central tyre pressure control system, making it possible to continue driving the vehicle with its tyres punctured by shooting. There was a VHF medium-range radio station in the steering compartment. The vehicle could accommodate 20 soldiers, including two crew members (commander and driver) and 18 soldiers in the landing troops compartment. The landing troops could open fire from inside the vehicle through six gun ports on the hull sides, four gun ports in the hatch covers and two gun ports in the rear door. As there was no vehicle-mounted armament this vehicle was not designed to move directly on the battlefield. At first, the carrier was part of the equipment of the motorised infantry company. Then, it was used for other purposes, serving, for example, as a mobile command and observation post, ammunition vehicle, artillery prime-mover, improvised ambulance, liaison vehicle, vehicle for driver training, etc.

SKOT-1A (SKOT S-260-1A) — a modified variant of the basic vehicle. In this vehicle, in the front part of the landing troops compartment, instead of the previously mounted hatch, a superstructure was built with a large hatch closed with a split cover. The superstructure was designed to ensure all-round firing from crew-operated guns, such as machine guns or anti-tank grenade launchers, without risking to injure other soldiers in the landing troops compartment. The number of transported soldiers was the same as in the carrier SKOT-1. This variant was later used as the basis for rebuilding into a vehicle with vehicle-mounted armament, designated as the SKOT-2A.

Infantry fighting vehicles – the basic type of carriers delivered to the mechanised infantry units. The equipping of the SKOT with vehicle-mounted armament was suggested by the representatives of the Command of the Unified Armed Forces of the Warsaw Treaty Organisation. The subsequent variants with vehicle-mounted armament were characterised by increasingly better firing performance, making it possible to use the SKOT directly on the battlefield.



Fig. 1. Armoured personnel carrier SKOT-1 during tactical exercises Source: Own collection

SKOT-2 (SKOT S-260-2) — a carrier with a small superstructure mounted in the front part of the landing troops compartment, in which a round hatch was provided with a rotating base for vehicle-mounted armament. At first, a 7.62 mm machine gun was mounted on this base (SGMT and, then, PKT), and, afterwards, a large calibre, 12.7 mm, machine gun of the DShK type. The ammunition stock for the gun was at the level of 1,250 rounds. The position with the mounted gun was protected on the sides by two armour plates and provided a full 360° firing ability. It was a temporary solution. Only a small number of carriers were upgraded to this variant. The modification was carried out at the military automotive plants from 1964. The vehicles were presented for the first time on 22 July 1964, during the military parade in Warsaw, organised to celebrate the 20th anniversary of the People's Republic of Poland²⁵.

SKOT-2A (SKOT S-260-2A) – a carrier with a fixed turret, borrowed from the Soviet vehicle BTR-60PB, developed at the Military Institute for Armour and Automotive Technologies in 1965²⁶. The vehicle was armed with the heaviest machine gun, 14.5 mm, of the KPVT type, and a coaxial 7.62 mm machine gun of the PKT type. The unit of fire for the KPVT was 500 rounds and for the PKT, 2,000 rounds. The carrier's crew consisted of 12 soldiers, including a commander, driver, on-board gunner and ten troops. The



J. Magnuski, Wozy bojowe Iudowego Wojska Polskiego 1943-1983, Warszawa 1985, p. 244; T. Begier, D. Użycki, Współczesne kołowe wozy bojowe, Warszawa 2000, p. 32. The speaker of the Polish Film Chronicle informed the viewers that the carriers SKOT-2, which were taking part in the military parade on 22 July 1964, were part of the equipment of the 1st Warsaw Mechanised Division. Two years later, the same type of the carrier was also shown during the military parade in Warsaw, during the celebrations of the millennium of the Polish state.

J. Janecki, Wojskowy Instytut Techniki Pancernej i Samochodowej, "Wojsko Ludowe", 1973, no. 1, p. 98.

combat weight of the vehicle was 14.3 ton²⁷. The first batches of this vehicle, produced in the years 1965-1968, were rebuilt from the previously manufactured SKOT-1A's, on which turrets with armament were mounted²⁸. This personnel carrier was treated in the Polished Armed Forces as an infantry fighting vehicle, designed to transport an infantry squad and to provide it with a direct fire support on the battlefield. It was the equipment of a motorised infantry company, being a part of the motorised infantry battalion, or an independent infantry company, being a part of the medium tank regiment.

SKOT-2AM (SKOT S-260-2AM) – it was a variant of the carrier SKOT-2A, developed at the beginning of the 1970s, additionally armed with two launchers for anti-tank guided missiles of the 9M14M Malyutka type, mounted on the sides of the turret and protected with armour plates or shields made of steel mesh. The design for mounting the rocket armament on this vehicle was developed at Wojskowy Instytut Techniczny Uzbrojenia (the Military Institute for Armament Technology) in Zielonka²⁹. The rearmament of the vehicle was carried out at Wojskowe Zakłady Motoryzacyjne nr 5 (Military Automotive Plants no. 5) in Poznań. The SKOT-2AM was added to the equipment of the Polish Armed Forces in a small number, as the vehicles intended for countering enemy tanks. They were available for the motorised infantry company commanders. Because of their armament they were classified as infantry fighting vehicles.



Fig. 2. Armoured personnel carrier SKOT-2AP Source: Own collection

²⁷ Transporter opancerzony SKOT-2A i jego odmiany. Opis i użytkowanie, Warszawa 1973; Technika wojskowa LWP. XXX lat rozwoju 1943-1973, Warszawa 1973, p. 79-80.

²⁸ Report by Andrzej Malinowski, Eng.

F. Puchała, Budowa potencjału bojowego Wojska Polskiego 1945-1990. Obszary szpiegowskich działań, Warszawa 2013, p. 447; B. Zakrzewski, Transportery opancerzone i bojowe wozy piechoty ludowego Wojska Polskiego 1943-1989, "Logistyka" 2014, no. 3, p. 6928.

SKOT-2AP (SKOT S-260-2AP) – a carrier with the so-called anti-aircraft turret was developed in 1969, by the designers from the Military University of Technology in Warsaw. The design of the turret made it possible to obtain high angles of elevation of the armament, enabling the crew to fight low-flying air targets (planes and helicopters). The incorporation of the new turret increased the weight of the vehicle to 14.5 ton. The crew and the purpose of the vehicle were the same as for the SKOT-2A variant The rebuilding of the carriers to the SKOT-2AP variant was carried out at FSC Lublin in the first half of the 1970s, when the serial production was already finished The carriers performed the role of anti-aircraft vehicles and were added to the equipment of the motorised infantry company together with the SKOT-2A and SKOT-2AM variants.

Fire support vehicles – they included the carriers designed to transport anti-tank subunits and mortar subunits being a part of mechanised regiments. Their role consisted in providing the possibility of deploying these subunits directly in the order of battle of motorised infantry units. This vehicle variant was built by the military automotive plants.

SKOT ART (SKOT S-260-ART) – the vehicle developed in 1968, on the basis of the SKOT S-260-1. Two basic variants of this carrier were produced – anti-tank and fire support variants. The anti-tank variant was designed to carry an anti-tank section consisting of a four-person crew of the heavy grenade launcher SPG-9 or the recoilless rifle B-10 and two three-person crews for the mobile launchers for anti-tank guided missiles 9K14 Malyutka, and, then, the 9K111 Fagot. The vehicle was included in the equipment of the anti-tank platoons of the support companies for the motorised infantry battalions. Its crew consisted of eleven soldiers. The fire-support variant of the vehicle was designed to tow a 120 mm mortar and carry its five-person crew and a stock of ammunition in the troops compartment. It was added to the equipment of a mortar platoon of the support company for the motorised infantry battalion. Its crew consisted of seven soldiers. The combat weight of the carrier SKOT ART was 14.3 t³².

Engineering support vehicles – they were intended to be used by subunits of the engineer troops in carrying out their basic engineering tasks for the mechanised subunits. They included the vehicles used for clearing passages through minefields using the explosive method and for establishing barrier minefields, being part of manoeuvre operations, in the threatened directions. These vehicles were developed by Wojskowy Instytut Techniki Inżynieryjnej (the Military Institute for Engineering Technology) in Wroclaw.

SKOT INŻ (SKOT S-260-INŻ) – the carrier for subunits of the engineer troops, built on the basis of the SKOT S-260-1. It was produced in two variants, a reconnaissance and mine-clearing vehicle and a barrage vehicle. The reconnaissance and mine-clearing

³⁰ S. Brudny, J. Cebulski, *Współczesne pojazdy terenowe*, Warszawa 1975, p. 113; C. Kubiaczyk, *Transporter opancerzony SKOT*, Warszawa 1971, p. 10.

Report by Mikołaj Polech, MSc, Eng.

³² J. Magnuski, Wozy bojowe ludowego Wojska Polskiego... p. 244.

vehicle had a fixed rack in the landing troops compartment, accommodating 25 sets of mine-clearing line charges UZ-2 and two boxes for engineering equipment and resources, including mine detectors. The UZ-2 charges were used for clearing and widening passages through the minefields and for destroying various targets. The vehicle towed a two-axis trailer of the P2P type with two sets of mine-clearing line charges, W-ŁWD, designed to clear passages through the minefields using the explosive method. It was possible to fire the charges from inside the carrier. The crew consisted of eight soldiers. The barrage vehicle was adapted to establish barrier minefields, as part of manoeuvring, by means of the OZap chute, mounted to the rear door threshold in the landing troops compartment. In the troops compartment there were three boxes for mines, holding 158 mines of the MPP-61 type or 137 mines of the TM-62 type. Mines were laid directly on the ground surface. It was also possible to use a towed minelayer, the PMR-3, to lay mines under the ground surface, at a depth of 4-15 cm. The crew consisted of five soldiers. Both variants of the vehicles SKOT INŻ had no vehicle-mounted armament³³.

Recovery vehicles – these vehicles were designed to provide technical assistance to the carriers SKOT damaged directly on the battlefield. They were included in the equipment of the maintenance subunits of the mechanised infantry units. This variant was built by Wojskowe Zakłady Motoryzacyjne nr 3 (Military Automotive Plants no. 3) in Glowno, responsible for major overhauls of the carriers SKOT.

SKOT WPT (SKOT S-260-WPT) – a recovery vehicle developed in 1969, at the Military Institute for Armour and Automotive Technologies, on the basis of the SKOT S-260-1³⁴. It was equipped, among others, with a folding crane with a hoisting capacity of 800 kg, a crane radius of 1.8 m and a lifting height of 3.6 m, a winch, a towing bar, special tool sets, spare parts sets, a jet pump for decontamination and disinfection, the Geiger counter DP-66 and a folding tent. In the troops compartment there were racks with drawers for parts and tools and workbenches. It had no vehicle-mounted armament. The combat weight of the vehicle was 14.58 ton. The crew consisted of five soldiers. The vehicle was included in the equipment of the wheeled vehicles maintenance team of the motorised infantry battalion³⁵.

Command and staff vehicles — this vehicle group was represented by the largest number of special variants of the carrier SKOT. Ten types of such vehicles were built, including SKOT R-2, R-2A, R-2M, R-2AM, R-3, R-3A, R-3Z, R-3M, R-4 and R-6. The preliminary preparation of the vehicles took place at FSC Lublin, where they were fitted with appropriate structures and frames for mounting the communications equipment. The specialist equipment was assembled at Zakłady Radiowe im. R. Kasprzaka (the R.

³³ Środki minowania i rozminowania. Opis i użytkowanie, Wyd. MON, sygn. Inż. 414/78, Warszawa 1978, pp. 201-206 and 254-258; S. Kaczmarczyk, T. Rylski, *Zestaw torujący z transporterem SKOT*, "Wojskowy Przegląd Techniczny" 1984, no. 1, p. 8-9.

³⁴ Technika wojskowa LWP. XXX lat rozwoju..., p. 68.

J. Magnuski, Wozy bojowe ludowego Wojska Polskiego ..., p. 243; T. Begier, D. Użycki, Współczesne kołowe wozy bojowe..., p. 32.

Kasprzak Radio Manufacturing Plants) in Warsaw, in cooperation with Przemysłowy Instytut Telekomunikacji (the Industrial Telecommunication Institute), Wojskowy Instytut Łączności (the Military Communications Institute) and Wojskowe Zakłady Łączności (the Military Communications Plants) in Zegrze.

SKOT R-2 – a command and staff vehicle providing radio and radiotelephone communications at the battalion – regiment level, built on the basis of the carrier SKOT S-260-2A. It was included in the army's equipment at the beginning of the 1970s. The carrier was divided into three compartments: operations and communications equipment, engine and driver compartments. The operations and communications equipment compartment had a thermal insulation lining and was fitted with the communications equipment and workstations for the technical crew. In its ceiling there was a turret with the same armament as in the variant SKOT-2A.



Fig. 3. Command and staff vehicle SKOT R-2 during tactical exercises at the Tadeusz Kosciuszko Mechanised Infantry Officer School in Wroclaw Source: Own collection

The vehicle SKOT R-2 was equipped with the means of radio communication — four radio stations, including one HF radio station of the R-112 type and one VHF radio station of the R-113 type and two VHF radio stations of the R-105dM type with a power amplifier, UM; wired means of communication — the switchboard ŁP-10MR, the telephone set TAI-43MR, and the interference eliminator FL; intercommunication equipment — six panels (central, commander's, operations officer's, vehicle commander's, gunner's and driver's panels); antenna assemblies — stub antennae, a 40 m beam antenna, an antenna on the 6.4 m half-telescopic mast and the telescopic pneumatic mast MTP-101; power supply equipment (diesel electric generator AB-1-P/30-I, battery charging unit of the ŁA type); navigation equipment (Jantar AM set with an orientation gyroscope, KM-2, and Trasa M set with a coordinates calculator, KP-2M). The navigation device made it possible to calculate the coordinates of the halting place of the vehicle and to plot them on the map. The variant SKOT R-2B did not have any naviga-



tion system. With the on-board radio stations it was possible to establish communication with other radio stations of the same type. For the radio station R-112 a transmission radius was 70 km when operated at a halt and 8.5 km when operated on the move. The radio station R-113 had a transmission radius of 14-20 km both at a halt and on the move. The radio station R-105dM with a power amplifier UM made it possible to maintain communication for up to 30 km at a halt and up to 20 km on the move. The combat weight of the vehicle was 14.85 ton. The crew consisted of seven soldiers, including five members of the technical and service crew (vehicle commander, radio operator, radiotelegraph operator, gunner, driver/vehicle electrician) and two members of the operational and technical crew (commander using the vehicle and operations officer). This command and staff vehicle was produced in the highest number and it represented the basic equipment for the staff of the motorised infantry battalions and the staff of the mechanised and tank regiments³⁶.

SKOT R-2A – a command vehicle and a mobile point for directing artillery fire, intended for the commander of the artillery division. It was built on the basis of the carrier SKOT S-260-2A, without an armed turret. It was divided into four compartments: steering, engine, command and fire control, and communication equipment compartments. To ensure radio communication the vehicle was fitted with five radio stations, including one HF radio station of the R-112 type, one VHF radio station of the R-113 type, two VHF radio stations of the R-108d type, one of them with a power amplifier, and one aeronautical VHF radio station of the R-802W type, installed in the driver's compartment. The radio station R-112 provided communications within a distance of up to 70 km at a halt and up to 25 km on the move, the radio station R-113 had a transmission radius of about 20 km, and the radio station R-108d, up to 30 km at a halt and 20 km on the move. The aeronautical radio station made it possible to establish communication with an reconnaissance aircraft within a distance from 60 to 240 km. The vehicle was also equipped with one radio receiver R-311. The antenna devices included stub antennae, a basket antenna and an antenna with a counterpoise. The latter two were mounted on the 10 m telescopic mast MTP-101. The wired communication equipment included a field switchboard of the LP-10MR type and two telephone sets TAI-43MR. It was possible to connect eight external subscribers to the switchboard. There was also a possibility of connecting two external points to control the radio station. The additional equipment included the navigation device Trasa-Jantar, the diesel and electric generator AB-1-P/30-I, the stereoscopic rangefinder DS-1 with the night vision attachment PDS-1, the fire control device PUO-9, and the artillery compass PAB-2A. The vehicle crew consisted of six soldiers, including four members of the technical and service commander/operator, driver/vehicle crew (vehicle electrician, tor/radiotelegraph operator and rangefinder operator) and two members of the operational crew (division commander and operations officer). The vehicle was designed

Wóz dowódczo-sztabowy SKOT R-2. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łączn. 457/70, Warszawa 1972, p. 28-42.

mainly to make a reconnaissance of the enemy, determine the target coordinates and control fire of the division³⁷.

SKOT R-2M — a command and staff vehicle included in the equipment of the Polish Armed Forces in the second half of the 1980s. The vehicle was designed for the battalion — regiment tactical level and it was built on the basis of the carrier SKOT S-260-2A. In comparison with the earlier variant SKOT-R2 it was equipped with more modern means of communication, including two VHF radio stations R-123Z, one VHF radio station R-107M, the field switchboard Ł-10MR and two telephone sets TA-57. The antenna assemblies included three stub antennae, the antenna AMD-111, a radial antenna and the pneumatic telescopic mast MTP-102. The vehicle was prepared for mounting the secure communication device T-219. The radio stations R-123Z provided communications within a distance of up to 42 km at a halt and 20 km on the move. The radio station R-107M had a transmission radius of up to 30 km at a halt and 17 km on the move. The field switchboard Ł-10MR was used to establish communication with ten external subscribers. The vehicle crew consisted of six soldiers, including vehicle commander/master operator, operator, driver/vehicle electrician, commander (user) and two operations officers³⁸.

SKOT R-2AM – an artillery command vehicle included in the equipment of the Polish Armed Forces in 1986. It was used for supporting the command in the artillery and rocket forces at the division, regiment and brigade level and for artillery commanders in the mechanised regiments. The vehicle was built using the chassis of the SKOT S-260-2A, without an armed turret. The vehicle was fitted with five radio stations, including one HF radio station of the R-130 type, two VHF radio stations of the R-123Z type, one VHF radio station of the R-107 type and one VHF radio station of the R-809 type. The wired communication equipment included the field switchboard ŁP-10MR, a field telephone set and a telephone security device. The vehicle was equipped with a diesel and electric generator and a set of antennae. The communication range provided by the radio station R-130 was up to 100 km, by the radio station R-123Z, up to 40 km at a halt and 20 km on the move, by the radio station R-809, up to 20 km, and by the radio station R-107, up to 5 km. The crew consisted of five soldiers, including the vehicle commander and driver/vehicle electrician, and the commander using the vehicle and two operations officers³⁹.

SKOT R-3 – a command and staff vehicle performing the role of the command post for the tactical level commander (regiment – division) and ensuring radio, radiotelephone and radio link communication. It was added to the equipment of the Polish Armed



Ruchomy punkt kierowania ogniem SKOT R-2A i R-3A. Budowa, obsługa i użytkowanie, Szefostwo Wojsk Rakietowych i Artylerii WP, Art. 508/72, Warszawa 1972, pp. 6-24; M. Hucal, Wozy dowodzenia wczoraj i dziś, Komunikat nr 30 Światowego Związku Polskich Żołnierzy Łączności, pp. 5-6. Internet, http://www.szpzl-zegrze.waw.pl/pdf/publikacje/komunikaty/wozy_dowodzenia.pdf.

Wóz dowódczo-sztabowy SKOT R-2M. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łączn. 891/86, Warszawa 1987, p. 11-16.

³⁹ Technika Wojska Polskiego, Warszawa 1998, p. 112.

Forces at the beginning of the 1970s. The vehicle was based on the variant SKOT S-260-2A, without an armed turret. The interior was divided into three compartments: communication equipment, operational and tactical, and steering compartments. The vehicle was fitted with the means of radio communication including four radio stations, one HF tank radio station of the R-112 type, three VHF radio stations, two of the R-105dM type and one tank radio station R-113, and one radio receiver of the R-311 type. The radio station R-112 had the communications range of up to 70 km at a halt and 25 km on the move. The radio station R-113 provided communications within a distance of up to 20 km both at a halt and on the move. The radio station R-105dM with the power amplifier UM made it possible to establish contact within a distance of up to 30 km at a halt and 20 km on the march. The antenna assemblies consisted of six stub antennae, a 40 m radial antenna, a turnstile antenna, a 10 m half-telescopic antenna and two pneumatic telescopic masts MTP-101 and MTP-102. The wired and radio link means of communication included a field switchboard of the ŁP-10RM type, two telephone sets TAI-43M, a radio link of the R-403M type with the power amplifier BUM and a radiotelephone of the K-1 type. It was possible to connect ten external subscribers to the field switchboard ŁP-10RM. The radio link of the R-403M type maintained telephone communication within a distance of up to 27 km at a halt and 7.5 km on the move. The radiotelephone K-1 provided communications within up to 40 km at a halt and 18 km on the move. The crew consisted of seven soldiers, including four members of the technical and service crew (vehicle commander, master radiotelegraph operator, master radiotelephone operator and driver/vehicle electrician) and three members of the operational and tactical crew (commander using the vehicle and two operations officers)⁴⁰.

SKOT R-3A - a command vehicle and a mobile artillery fire control point for the commander of the artillery regiment and the artillery commander of the division. The vehicle was based on the SKOT S-260-2A, without an armed turret. The means of radio communication included five radio stations, one HF radio station of the R-112 type, one VHF radio station of the R-113 type, two VHF radio stations of the R-108d type with a power amplifier and one aeronautical VHF radio station of the R-802W type and the radio receiver R-311. The antenna equipment included stub antennae, a basket antenna, an antenna with a counterpoise, an antenna ADS and the antenna "Yagi". The radio stations had the same transmission radius as those fitted in the vehicle SKOT R-2A. The means of radio link and wired communication included a radio link of the R-403M type with the power amplifier BUM, a field switchboard of the ŁP-10MR type, one radiotelephone K-1 and two telephone sets TAI-43MR. The radio link communications was ensured within a distance of up to 27 km at a halt, and the radiotelephone communications, by means of the set K-1, up to 40 km at a halt (with the use of a mast antenna) and 18 km on the move. The additional equipment included the diesel and electric generator AB-1-P/30-I, the stereoscopic rangefinder DS-1 with the night vision

Wóz dowódczo-sztabowy SKOT R-3. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łączn. 458/70, Warszawa 1972, p. 13-23.

attachment PDS-1, the fire control device PUO-9 and the artillery compass PAB-2A. The crew consisted of five soldiers, including three members of the permanent crew (vehicle commander/operator, driver/vehicle electrician and operator/radiotelegraph operator) and two members of the operational crew (regiment commander or artillery commander and staff officer/rangefinder operator). The vehicle was designed to make a reconnaissance of the enemy and the area, determine the target coordinates and control fire of an artillery troop⁴¹.

SKOT R-3Z – a command and staff vehicle at the tactical and operational level (division - army - battlefield) fitted with a set of modern means of radio, radiotelephone and radio link communication. It was included in the equipment of the Polish Armed Forces in the mid-1970s. The vehicle was based on the variant SKOT S-260-2A, without an armed turret. The interior of the vehicle was divided into four compartments: driver, engine, operational and communication equipment compartments. There were two workstations in the driver's compartment, three in the operational compartment and one in the communication equipment compartment. In total, the vehicle accommodated seven workstations, out of which two standby workstations were used when the vehicle was at a halt (one in the driver's compartment and one in the communication equipment compartment). The means of radio communication included four radio stations, one HF radio station of the R-130 type (fitted in the driver's compartment), two VHF radio stations of the R-111 type and one portable VHF radio station of the R-126 type. The vehicle was also equipped with a radio link of the R-405PT-1S type, one radio receiver R-323, the radiotelephone K-1 and the portable radiotelephone K-2 and two telephone sets TAI-43MR. The ancillary equipment had a modular design, facilitating the repair of any damaged components. Within a distance of up to 500 m from the vehicle two external points could be connected, making it possible to operate remotely the radio stations installed in the vehicle. The antenna assemblies consisted of four stub antennae, a frame quasi-magnetic antenna for the sky-wave transmission, an angle antenna, a cylindrical antenna for a radio link and two telescopic masts MTP-101. The radio station R-130 with a quasi-magnetic antenna ensured communications within a distance of 100 km both on the move and at a halt. The radio stations R-111 provided communications within a distance of up to 60 km. The transmission radius of the radio link was 45 km. At a halt the supply power was provided by a diesel and electric generator of the AB-1-P/30-I type. The crew consisted of six soldiers, including three members of the permanent crew (vehicle commander, master communication operator and driver/vehicle electrician) and three members of the non-permanent crew (commander using the vehicle and two operations officers)⁴².

SKOT R-3M — a command and staff vehicle providing radio, radiotelephone and radio link communication at the tactical and operational level (division — army — battlefield).



Ruchomy punkt kierowania ogniem SKOT R-2A i R-3A..., p. 6-24; M. Hucal, Wozy dowodzenia wczoraj i dziś..., p. 8.

Wóz dowódczo-sztabowy SKOT R-3Z. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łączn. 577/74, Warszawa 1975, p. 17-35.

It was built on the chassis of the carrier SKOT S-260-2A, without any armament. In comparison with the earlier variant the vehicle was fitted with the third generation of modern VHF radio stations and a single-band HF radio station. The means of radio communication included one radio station HF of the R-130M type, one radio station VHF of the R-111 type, and two radio stations VHF of the R-123Z type. The radio station R-130M made it possible to establish communications within a distance of up to 100 km on the move and 350 km at a halt. The radio station R-111 provided the communications range of up to 40 km on the move and 80 km at a halt. The radio stations R-123Z made it possible to establish communications within a distance of 25 km on the move and 30 km at a halt. The wired and radio link means of communications included the switchboard ŁP-10MR, two telephone sets TA-57, the radio link R-405PT-1 and a radiotelephone of the K-1 type. The radio link R-405 made it possible to establish communications within a distance of up to 40 km at a halt and 3 km on the move. The antenna assemblies comprised five stub antennae, a frame quasi-magnetic antenna for the sky-wave transmission, a dipole balanced antenna for the sky-wave transmission at a halt, a strip antenna, an angle antenna, the telescopic mast MTP-100 and the telescopic mast MTP-101A. The vehicle was also fitted with the secure telephone communication device T-119 and the secure telegraph communication device M-125. The power supply at a halt was provided by a 1 kW remotely controlled diesel and electric generator of the AB-1-P/30-Z type. The vehicle crew consisted of six soldiers, including three members of the permanent crew (vehicle commander/master operator, operator and driver/vehicle electrician) and three members of the non-permanent crew (commander using the vehicle and two operations officers). The vehicle weight, including the crew, totalled about 14.85 t⁴³.

SKOT R-4 – a command and staff vehicle for the head of reconnaissance of the division and the commander of the reconnaissance battalion. The SKOT S-260-2A, without an armed turret, was used as the basis for this vehicle. The interior was divided into four compartments: steering, engine, operational and communication equipment compartments. The vehicle was fitted with the means of radio communication including four radio stations, one HF radio station of the R-130 type, two VHF radio stations of the R-111 type and one portable VHF radio station of the R-126 type. The vehicle was equipped with three VHF radio receivers, including one receiver of the R-323 type, one receiver of the R-870(M) type and one receiver of the R-871 type, and one radiotelephone K-1 and one radiotelephone K-2. The antenna assemblies comprised stub antennae, a dipole balanced antenna, a quasi-magnetic antenna, a dagger antenna, a discone antenna, a strip antenna and the telescopic mast MTP-101. The radio station R-130 provided communications within a distance of up to 100 km at a halt and on the move. The radio stations R-111 made it possible to maintain communications within a distance of up to 60 km at a halt and 18 km on the move. Receivers of the R-870(M) and R-871 types ensured the cooperation with reconnaissance aircrafts. The additional

Wóz dowódczo-sztabowy SKOT R-3M. Tom 1. Opis techniczny, Szefostwo Wojsk Łączności MON, Łączn. 831/83, Warszawa 1983, pp. 11-26; Technika Wojska Polskiego, Warszawa 1998, p. 113.

equipment included the diesel and electric generator AB-1-P/30-I, two night vision devices PNW-57 and the compass LUN. The combat weight of the vehicle was 14.85 ton. The crew comprised seven soldiers, including three members of the permanent crew (vehicle commander/coder, driver/vehicle electrician and master operator) and four members of the commanding group (commander using the vehicle and three operations officers)⁴⁴.

SKOT R-6 – a command and staff vehicle and a mobile artillery fire control point designed for the commander of the battery of self-propelled anti-aircraft weapon, ZSU 23x4 Shilka. The vehicle was based on the variant SKOT S-260-2A, without an armed turret. The interior was divided into four compartments: steering, engine, operational and communication equipment compartments. The vehicle was equipped with four radio stations, including two VHF radio stations of the R-123 type, one VHF radio station of the R-105dM type with the power amplifier UM and one VHF radio station of the R-109d type with the power amplifier UM, and the radio receiver R-311 (fitted in the driver's compartment). The set of antennae comprised stub antennae, the antenna AD-1, a radial antenna and the telescopic mast MTP-101. The radio stations R-123 provided radio communication within a distance of up to 14 km, the radio stations R-105d and R-109d, within a distance of up to 30 km at a halt and 20 km on the move. Radiotelephone communications was ensured by the radiotelephone K-1. Its range at a halt, with the use of the antenna on the telescopic mast, was 40 km. Wired communications was provided with the use of the field switchboard L-10MR and two telephone sets TAI-43MR. The vehicle was equipped with the diesel and electric generator AB-1-P/30-I. The crew consisted of seven soldiers, including three members of the permanent crew (vehicle commander, master operator and driver/vehicle electrician) and four members of the command and artillery fire control group (battery commander, two operations officers and plotter)⁴⁵.

A broadcasting vehicle was an atypical variant of the SKOT. It was produced in a small number and added to the equipment of the army in the mid-1970s. It was used mainly for training purposes, to provide sound during large-scale exercises.

SKOT REA – a broadcasting vehicle. It was built on the basis of the carrier SKOT S-260-1. The vehicle was designed for the directional broadcasting of sound recordings over a long distance and to produce sound camouflage and to simulate sound effects of the then contemporary battlefield during exercises. The vehicle was fitted with a control panel, audio amplifying equipment of 1,600 W, a radio receiver, tape recorders and a record player. Two dynamic horn loudspeakers were fixed outside, in the front part of the carrier, and a revolving column consisting of nine loudspeakers, hydraulically lifted, was mounted over the landing troops compartment and ensured omnidirec-



Wóz dowódczo-sztabowy SKOT R-4. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łącz 590/74, Warszawa 1975, p. 17-35.

Wóz dowódczo-sztabowy SKOT R-6. Opis techniczny i eksploatacja, Szefostwo Wojsk Łączności MON, Łączn. 523/72, Warszawa 1973, p. 27-36, 192-193; M. Hucal, Wozy dowodzenia wczoraj i dziś..., p. 11.

tional broadcasting. The broadcasting radius was up to 6 km in a daytime and 8 km at night. For the simulation of a battlefield four vehicles were concurrently deployed at the edges of the training area. Such deployment made it possible to achieve four-channel stereo sound system effects and to produce highly realistic sounds of explosions of aerial bombs and artillery projectiles, rifle fire, flying aircrafts, tank attack, etc. Few vehicles of this type were built. They were included in the equipment of the Special Propaganda Unit and special propaganda support groups of the military districts, prepared for psychological operations during warfare. The vehicles were decommissioned at the beginning of the 1990s⁴⁶.

6. SERVICE OF THE CARRIER SKOT IN THE POLISH ARMED FORCES

The armoured personnel carriers SKOT in their basic variant were included in the equipment of mechanised infantry regiments and motorised infantry companies of tank regiments of the mechanised infantry division and the armoured division. The lead time for deliveries of vehicles was relatively short. In 1964, the Polish Armed Forces received 50 carriers SKOT. After their rebuilding to the variant SKOT-2 they were included in the equipment of the 1st Mechanised Infantry Regiment of the T. Kosciuszko 1st Mechanised Infantry Division, which presented them to the public for the first time during the military parade in Warsaw on 22 July. In 1965, more than 500 vehicles were delivered to the army. In the following years the deliveries were at a similar level. In 1965 and 1966, the carriers SKOT were included in the equipment of the 5th, 10th and 11th Armoured Divisions and the 12th Mechanised Infantry Division and in 1967, they were allocated to the 4th and 8th Mechanised Infantry Division. The vehicles were also added to the equipment of the 6th Airborne Division and 7th Landing Division. The basic deliveries for the Polish Armed Forces were finished in 1969. At that time the carriers SKOT were allocated to all general divisions of the Silesian and Pomeranian Military Districts. In the Warsaw Military District they were included in the equipment of only the 1st Mechanised Infantry Division. In January 1971, according to the records, the equipment of the land forces comprised 2,338 vehicles⁴⁷.

Motorised infantry companies, being part of the motorised infantry battalions of the mechanised infantry regiments, were the basic units armed with these carriers. At first, the battalion was equipped with 21 personnel carriers of the SKOT-1 variant (two carriers per platoon – seven vehicles per company). They served as the means for transporting soldiers to the battlefield and after the troops were disembarked the vehicles would move at the rear of the formation, without taking any direct part in combat operations⁴⁸. Commanders were dissatisfied with such role performed by the SKOTs and therefore, already in 1964, the carriers started to be delivered in the variant SKOT-2,

Encyklopedia techniki wojskowej, Warszawa 1978, p. 592; Report by Warrant Officer Adam Chodaczyński, M.Sc. (in the author's possession).

Wykaz wyposażenia, uzbrojenia i techniki wojskowej WP of 12.05.1971. CAW 1643/52 sheet 16.

Organizacja dywizji zmechanizowanej z 1968 r., Archiwum MON (hereinafter AMON), 1704/2000/90, sheet 409.

armed with a 7.62 mm machine gun or a large calibre, 12.7 mm, machine gun. As a gunner on board of the vehicle was not sufficiently protected in the carrier SKOT-2, a subsequent variant of the vehicle was included in the equipment, designated SKOT 2A, fitted with a rotating turret armed with the heaviest machine gun, 14.5 mm, and a 7.62 mm machine gun. This variant opened a new phase in the development of the mechanised land forces by providing the fighting units with direct support on the battlefield. Gradually, the carrier became the basic fighting vehicle for the motorised infantry. Over time it was determined that the capability of the carrier SKOT-2A to attack aerial targets was too limited. Thence, a new vehicle was developed, fitted with an anti-aircraft turret, called SKOT-2AP, which was included in the equipment of the Polish Armed Forces in the 1970s. These carriers replaced the vehicles SKOT-2A in the units forming the first operational echelon. The introduction of the armed variants of the carrier, which transported a smaller number of the landing troops, made it necessary to increase the number of carriers in the motorised infantry companies from seven to ten (from two to three per platoon). As a result of these changes the number of carriers in the motorised infantry battalion increased from 21 to 30.49

The popularisation of the carrier SKOT in the units of armoured and mechanised troops uncovered the need for bringing in special vehicles for artillery, engineering, communications and maintenance service subunits. First, the command and staff vehicles SKOT R-2 and R-3 were developed, designed to maintain communications at the tactical, and tactical and operational level. The next group was formed by support vehicles. In 1969, the vehicles SKOT ART were included in the equipment of the anti-tank platoon of the company supporting the motorised infantry battalion and they were designed to transport a crew of the launcher for anti-tank guided missiles and the 73 mm heavy anti-tank grenade launcher SPG-9⁵⁰. The personnel carrier SKOT INZ was added to the equipment of engineering companies and battalions. A technical support vehicle, the SKOT WPT, was also developed and was added to the equipment of repair teams of the motorised infantry battalions and repair companies of the mechanised infantry regiments. As a result of the above changes the total number of the fighting vehicles SKOT in different variants, held by the mechanised infantry division, increased to 325 line vehicles, including 270 vehicles of the armed variant SKOT-2A and 2AP, 18 vehicles in the variant SKOT ART, 28 vehicles in the variant SKOT INZ and nine vehicles in the variant SKOT WPT. The mechanised infantry regiment was in possession of 105 personnel carriers, including 90 vehicles in the armed variant, nine vehicles in the variant SKOT ART and three vehicles in each of the variants SKOT INZ and SKOT WPT. The personnel carrier SKOT was the first type of vehicle in the Polish Armed Forces on the basis of which special variants, apart from the fighting vehicles, were built, ensuring effective cooperation in each type of combat operations.

⁴⁹ Organizacja dywizji zmechanizowanej w latach siedemdziesiątych, AMON, 1704/2000/96, sheet 69.

⁵⁰ Etat nr 30/083 pułku zmechanizowanego of 25.08.1966, CAW, 1678/84/1790, sheets 16-20.

The carrier SKOT was commonly used in the armoured and mechanised troops at the beginning of the 1980s. Afterwards, as a result of adding to the equipment the infantry fighting vehicle BWP-1, they were relocated to the units of the second operational echelon or decommissioned. This process took a relatively long time to complete, as the programme for modernisation of the armed forces was also spread over a long time. In 1986, the land forces had 2,439 carriers SKOT, being part of their equipment. There were 2,069 line vehicles, including 1,470 vehicles in the armed variant SKOT-2A, 2AP and 2AM, 106 vehicles in the variant SKOT ART, 313 vehicles in the variant SKOT INŻ, 47 vehicles in the variant SKOT WPT and 133 vehicles in the basic variant⁵¹. There were 370 command and staff vehicles, including 191 vehicles in different variants of the R-2, 138 vehicles in different variants of the R-3, 20 vehicles of the variant R-4 and 21 vehicles of the variant R-6.

In the mid-1980s, it was considered to replace the carrier SKOT with a new generation vehicle. The launch of serial production of the Soviet personnel carrier BTR-80 in Poland was even taken into account. However, after analysing the possible expenditure the project was considered unprofitable. At the end of the 1980s, at the Military Institute for Armour and Automotive Technologies, the analysis of the technical condition of the carrier SKOT and prospects for its future use in the Polish Armed Forces was carried out. It was estimated that the average wear and tear of these vehicles did not exceed 40%, so they could be used for a few dozen more years. It was suggested to keep about 1,500 carriers SKOT-2AP as part of the equipment and to modernise them by thickening the armour, fitting the automatic fire safety and fallout systems, mounting smoke grenade launchers and using run-flat tyres⁵³. The project, although supported by the chief of the Board of the 1st General Staff of the Polish Armed Forces, was not accepted by the executives of the Ministry of National Defence⁵⁴.

In 1991, as a result of including in the equipment further infantry fighting vehicles, the number of the line carriers SKOT was reduced to 1,261 vehicles, including 856 vehicles in the armed variant (679 SKOT-2AP), 72 vehicles in the variant SKOT ART, 288 vehicles in the variant SKOT INŻ and 45 vehicles in the variant SKOT WPT⁵⁵. In that period, because of the advancing processes of international détente and the end of the Cold War a decision was taken to significantly reduce the Polish Armed Forces. Pursuant to the provisions of the Treaty on Conventional Armed Forces in Europe (CFE) the decommissioning of the fighting variants of the carrier SKOT from military units was carried out

Ukompletowanie ogólnowojskowych ZT w ważniejsze rodzaje uzbrojenia i sprzętu wojskowego w latach 1986-1990, IPN 02958/414.

J. Ciślak, military website, Internet, [online] Avalible ob. the Internet: http://serwis-militarny.net/forum/viewtopic.php?f=20&t=3150&start=30#p14412 (access 10.09.2015).

Notatka służbowa komendanta WITPiS płk Janusza Janeckiego no. PF 198 of 16.04.1987. AMON, 1272/96/209, sheet 182.

Pismo szefa Zarządu I Sztabu Generalnego WP no. PF 699/I of 19.05.1987. AMON, 1272/96/209, sheet 183

⁵⁵ *The Military Balance 1991-1992*, Londyn 1991, p. 91.

on a mass scale, followed by their reselling or scrapping. At the beginning of 1996, the land forces were in possession of only 37 carriers SKOT of the command and staff variant, in 2000, there were 33 of them, and in 2003, there remained 22 vehicles. ⁵⁶ Unfortunately, the decommissioned carriers were not replaced by new vehicles of this type, which had a severe impact on the Polish military contingents taking part in the stabilisation missions in the former Yugoslavia in the 1990s, where the lack of armoured infantry fighting vehicles posed a huge problem.

CONCLUSION

The armoured personnel carrier SKOT, in comparison with the earlier vehicles of this type being part of the equipment of the Polish Armed Forces, was characterised by a highly modern, or even revolutionary, design. The technical solutions applied in the vehicle, such as the self-supporting, airtight, armoured hull, air-cooled diesel engine adapted to run on different fuels, semiautomatic planetary power transmission for all-wheel drive system, independent wheel suspension, high maximum speed and a long driving range, ability to make hasty crossings, relatively high useful load, ability to operate in the contaminated area and significant ease of modernisation, placed it among the top most modern carriers worldwide, adapted to take part in combat operations under both conventional and nuclear conditions. The development of over 20 fighting and special variants made it possible to use the vehicle in several different battlefield missions. Its addition to the equipment of the Polish land forces enabled them to become fully "mechanised" and it definitely ended the era of classical infantry. Owing to this vehicle, in the second half of the 1960s, the Polish Armed Forces became a modern army, meeting the then contemporary European standards.

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