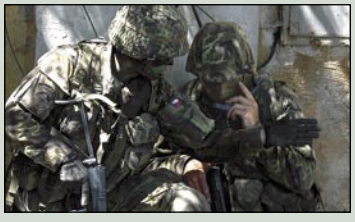
HISTORY OF SIGNAL CORPS

Michal BURIAN, Jiří RÝC







PRAGUE 2007

Motto:
"There is only one communication in the twentieth century which may be called modern, it is radio ..."

by Maj. GS Jaroslav Hájíček
to London leadership
of the Czechoslovak Resistance abroad,
September 11, 1939

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Dear reader,

In 2007, the Signal Corps of the Czech Republic's Armed Forces commemorates 90 years of its existence which began in Czechoslovak legions in Russia at the end of World War I.
Since then, it has passed through a number of changes, dependent namely on the development of operation art and technology.
In individual phases of its historical development, the Signal Corps always successfully managed all the changes and its activity created favourable conditions for the commanders and headquarters to be able to command their subordinate units. In this way, it participated in performing the tasks and meeting the targets of our Armed Forces.
In the last years, the field of activity of the Signal Corps has been extended by the sphere of information systems. In this way, its role in the system of command and control has been promoted, which resulted in more effective introduction and use of up-to-date communication and information systems.
A purpose of this publication is not only to commemorate the history of the Telegraph or rather Signal Corps but also to present its state-of-the-art and perspectives within the changed conditions of waging a battle and responding to the situations of crisis.
The Signal Corps of both the Czechoslovak and Czech Armed Forces made a large piece of path since its first shy steps in the formations of Czechoslovak legions on the fronts of World War I, through its rapid development in the period between the wars, activity of signalmen in the resistance movement at home and abroad in the years of World War II, in after-war development till the present days when it has already its firm position within the Czech Republic's Armed Forces.
However, the book you have received should not be a mere listing of events, facts and data. I dearly wish this book to address you and drag you deep into the story thanks to the way of description of the events, choice of the used historical documents and last but not least, by the overall editing of the book in the same way as it happened to me when I was reading the prepared text page by page.
At the same time, I believe that after having read this book, we shall know more about the history of our Armed Forces and it will increase our pride in those who honestly and faithfully served in the Signal Corps.
It will strengthen our desire to follow them even more.

Brig. General Jiří BALOUN
Chief of Signal Corps of the Czech Armed Forces

Prague, April 30, 2007

INTRODUCTION

The effort to transmit information to longer or shorter distance is as old as humankind itself. Inventions, development and use of technical communication means belongs to the important innovations which, to some extent, affect the overall development of human society and logically find their application in the art of waging armed conflicts.

According to the booklet titled "TELEGRAPH" written by draftsman of (King and Emperor's) Post Directorate in Prague Dr. Otto Kučera in 1915: *...if we follow development of conveying the information from the oldest times, we can see three phenomena:*

I. *The first conveying was executed in the way that sender handed over the message to messenger orally and the messenger went on foot, on horseback, by a car or by ship to hand over the message to addressee again orally. However, it was namely messenger's memory and his reliability that played important role namely in case of longer messages and therefore, there was a need to invent a system of writing.*

II. *After invention of writing, the sender wrote the message, which he wanted to send to a distant addressee, on a papyrus, tablet, parchment or paper and let these objects to be conveyed to the addressee. This way of conveying is called letter post.*

III. *Finally, they developed the third way of conveying the messages, which is called "telegraphy" since 1792. Special feature of this way of conveying is that there is no need of any person to travel or to convey some objects as the carriers of the message – only the content of the messages is conveyed from one place to another.*

The telegraph (an expression consisting of Greek τηλε, *read téle = far and* γραφειυ *read grafejn = to write) is a device which enables conveying of messages in the way that an idea expressed by senses on one place is expressed on a distant place in the way which can be again descried by the senses without necessity to convey some objects with the message."*

Comparing the statistic data concerning the use of telegraph, Otto Kučera writes: *"We can see astonishing development; if we imagine how many thousands of heads are working in all cultural states on further technical upgrading and the most purposeful international organisation of telegraphy, we cannot imagine what progress expects the telegraphy e.g. within the next 50 years and we nearly believe the word of the famous inventor Tesla saying that ..."there comes the time when the telegraph and telephone wires will rest in museums only and each man will carry in his pocket a little apparatus by means of which he will be able to communicate with any person anywhere in the world".*

Wagon of Czechoslovak Telegraph Company in Russia

During World War I, practically all the technical problems concerning transmission and use of telegraph, telephone and radio-telegraph devices in field conditions were already solved. At the end of WWI the technical communication means began to prevail over the most often used non-technical means of command – messengers and various kinds of signalisation.

After the decay of Austria-Hungary, there was no industry producing communication devices on the territory of Czechoslovak Republic. In spite of this fact, namely after establishing Military Telegraph Workshops, the design and production of military communication means in Czechoslovak Republic reached sufficiently high level within a short period so that the Telegraph and Signal Corps of Czechoslovak Army maintained its technical level comparable with other modern armies in the whole course of its historical development .

We can state that the activity of Signal Corps members, development and production of communication equipment, principles and the way of communication organisation in all phases of its historical development enabled the commanders and staffs to command subordinate units and markedly participate in successful activity of Czechoslovak Army in peacetime and during the war. The same holds at present, together with the means of command and control automation, including the operation in peacekeeping missions of the Czech Armed Forces.

This year, the Signal Corps of the Czech Armed Forces celebrates 90th anniversary of its origin. On October 30, 1917, based on the Order of the Chief of Staff of Supreme Commander of Russian Troops in Ukraine, the first Czechoslovak Telegraph Company was established, which became a basis for the future development of the Czechoslovak Telegraph and Signal Corps. Czechoslovak soldiers and their combat activity in distant foreign country contributed, to a large degree, to the origin of the Czechoslovak Republic in October 1918. During their operation in Siberia, where they occupied a territory of the area nearly as large as the whole Europe, the Czechoslovak military won the sympathy of the whole world. It is the same today, when the members of the Czech Armed Forces operate in peacekeeping missions in no less distant part of our planet. In 1920, when the soldiers of Telegraph Company were leaving Vladivostok and returning to their home country, the last Company Order included the following sentence:*"Telegraph Company has accomplished its long-year telegraphy work. It may be proud of its work ...Its quite and assiduous work helped very often and substantially the whole Czechoslovak Troops and allied forces and detachments under our main command in the most critical situations ..."*

František Kupka:
At the brigade; aquarelle, about 1919

Radio station of Czechoslovak Legions in Russia

Signalmen of Czechoslovak Defence Force in the twentieth

A telephonist with telephone apparatus, Model 35

This publication would like to show in brief the distance which the Telegraph and Signal Corps of Czechoslovak and Czech Armed Forces overcome since its first small shy steps in the formations of the Czechoslovak legions on the fronts of WWI, through the stormy development of the Czechoslovak Republic in the period between the wars, activity of the resistance movement at home and abroad in the years of WWII, after-war development of the Signal Corps in the liberated Republic till the contemporary development in the Czech Armed Forces. In many cases, the reader may feel abashed seeing relation between the problems in the past and the present, namely in the case that solves the contradiction

Training of a telegraph platoon of the 1st Czechoslovak Combined Brigade in Great Britain

Members of the 2nd Signal Battalion of the1st Czechoslovak Independent Brigade in the U.S.S.R

Signalmen with A7b radio station in the fiftieth

between limited possibilities of the communication equipment of the given period and overtaking requirements upon the communication dictated by development of tactics and operation art. It would not be less interested to see how the Signal Corps Command solved the "age-old evil" of too low numbers of persons, financial resources and material on one had and high requirements upon the communication provision in different phases of its historical development on the other hand.

A number of schemes, photos and other concrete data were acquired in original shape without formal or content arrangement. The publication does not lay claim to completeness and verbal accuracy. It wishes to be only a review of major activities, including characteristic data necessary to create an overall picture of development of the Signal Corps. The route of development of the Signal Corps, which was not easy and was accompanied by many difficulties, could preserve its progressive character only thanks to persistent work of many members of the Signal Corps. It is to the credit of all the known and unknown signalmen that we can be proud of our work and traditions. The achieved technical level of the Signal Corps of the Czech Armed Forces is a good prove of it.

This publication is devoted namely to those who made an effort to do it.

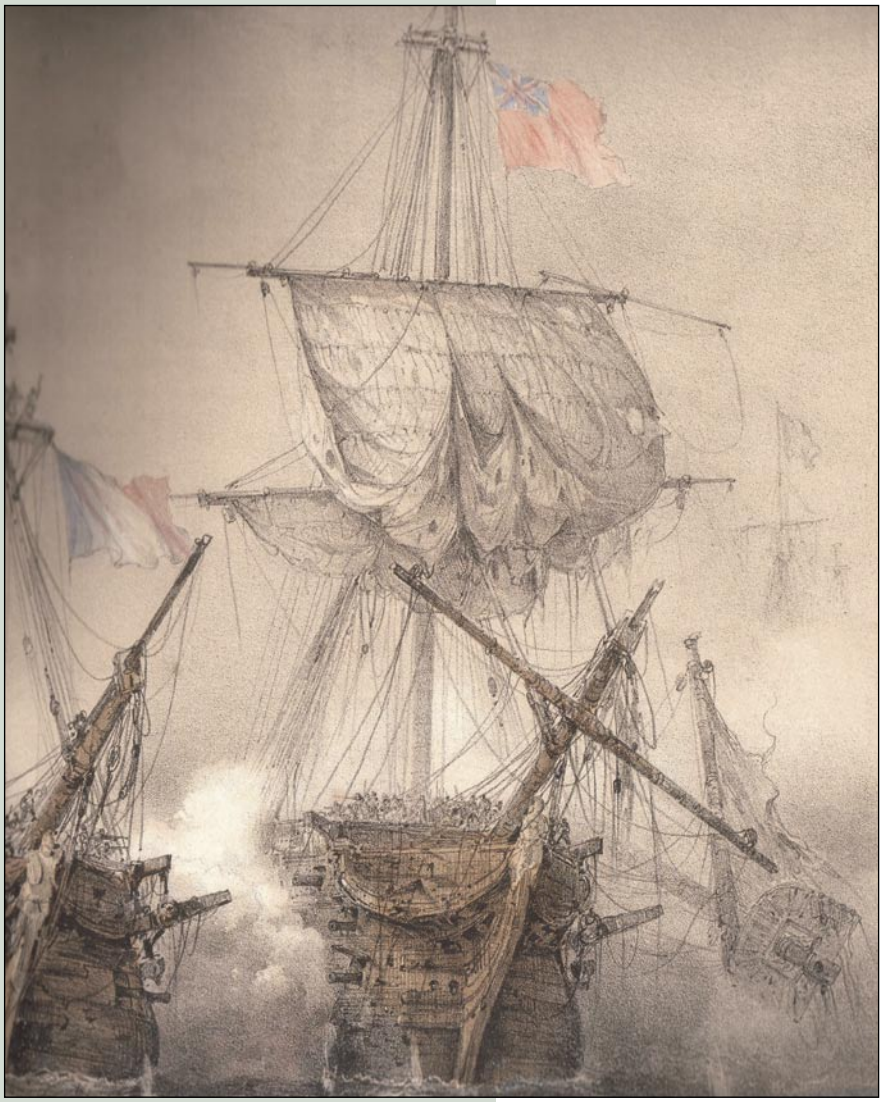
Member of 601st Group of Special Forces in Afghanistan with RF-series radio station in the year 2004

Erection of antenna of RDM 12 radio-relay station

Member of KFOR peacekeeping operation in Kosovo with RF- series radio station

BRIEFLY ON THE HISTORY OF COMMUNICATION OF FORMER EPOCHES

Fire signals preserved their importance till the 19th century



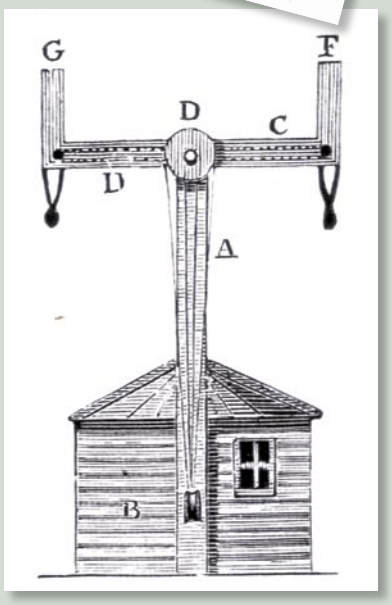
Navy flag signals created by Duke of York (later British King James II); they played important role in the victory of Admiral Nelson in the Battle of Trafalgar in 1805

The oldest mentions about the attempts concerning the long-distance transmission of information can be found in antiquity. King Agamemnon informed his wife Clytemnestra in Mycenae about his victory over Troy by means of a chain of fires up to the distance of more than 500 km. It would be, of course, rather overstated to call that moment the beginning of Signal Corps. However, similar means of communication were used as long as the twentieth century. Signalling by means of smoke can be found even in the Old Testament e.g. when describing the punitive expedition against Benjamin's in the book of Judges. In the middle of the 5th century B.C., Persian King Xerxes established a "permanent line" up to the Greek border consisting of a chain of 480 announcers who handed over the messages by voice thirty times more rapidly than messengers. The closest to our idea of message transmission is the first truly communication system which was invented, according to Greek historian Polybius, by Alexandrian philosophers Cleoxjénes and Démocleitos in the same period. A special code enabled to transmit words by the help of torches so that each letter inscribed in a square, divided into 25 fields, had a corresponding number of the lights for line and for column. By changing position of the letters in the square, the message could be primitively enciphered.

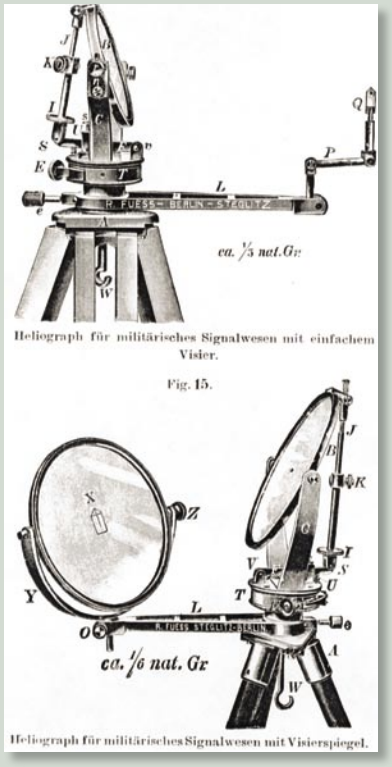
Next important step in conveying the messages was made by the people living 2,000 years later. It was the year 1792 and the French Chapp brothers constructed an optical semaphore tachygraph. They installed movable arms on the top of a tower and used a code consisting of 96 combinations of four positions of a bar and seven positions of

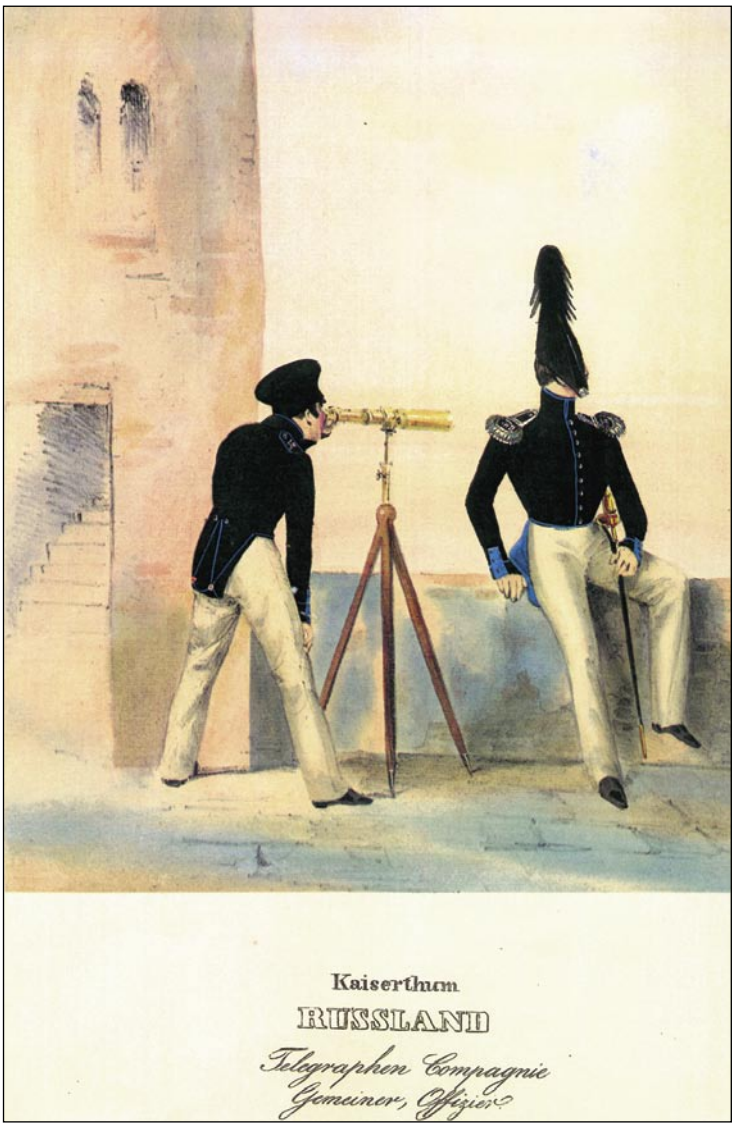
a couple of arms, which enabled transmission of figures and the whole words. In 1794, the first line between Paris and Lille was put into operation with 23 stations installed on the 210 km-long line. More and more links were gradually built and used even by Napoleon Bonaparte soon after his accession. Napoleon grasped the essential importance of communication for the success of war operations and he supported installation of further lines in every which way. He had both stationary and mobile stations at his disposal. In 1805, he ordered to extend the line of Chapp Telegraph up to Milan. After the Napoleon's defeat, the line was cancelled. In 1796, British Admiralty built a telegraph line from London to Deal by Dover designed by Lord George Murray. The system was based on two stands with three tiltable plates enabling 64 combinations. Three years later, Alessandro Volta invented a galvanic cell which played very important role in the future development of communication technology.

Chapp´s telegraph

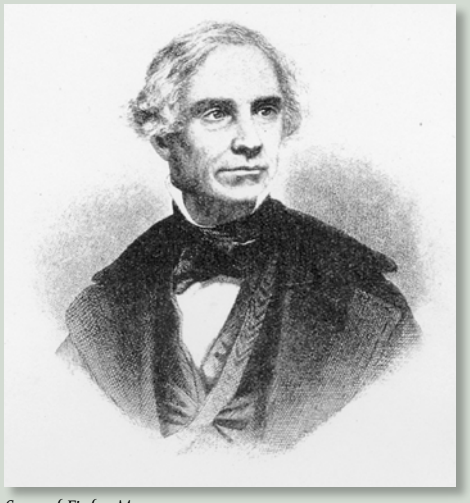


German military signal heliograph





Members of Russian Army Telegraph Corps

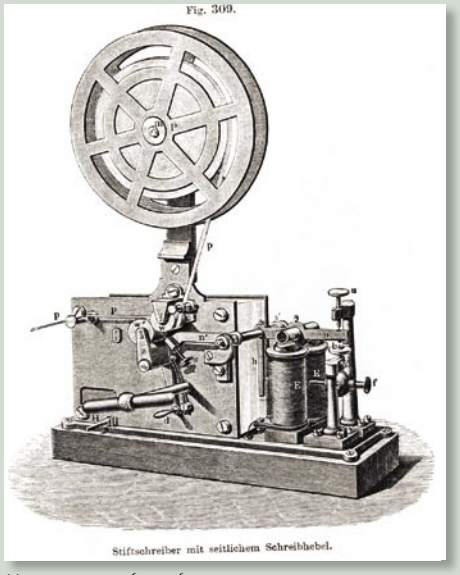


Samuel Finley Morse

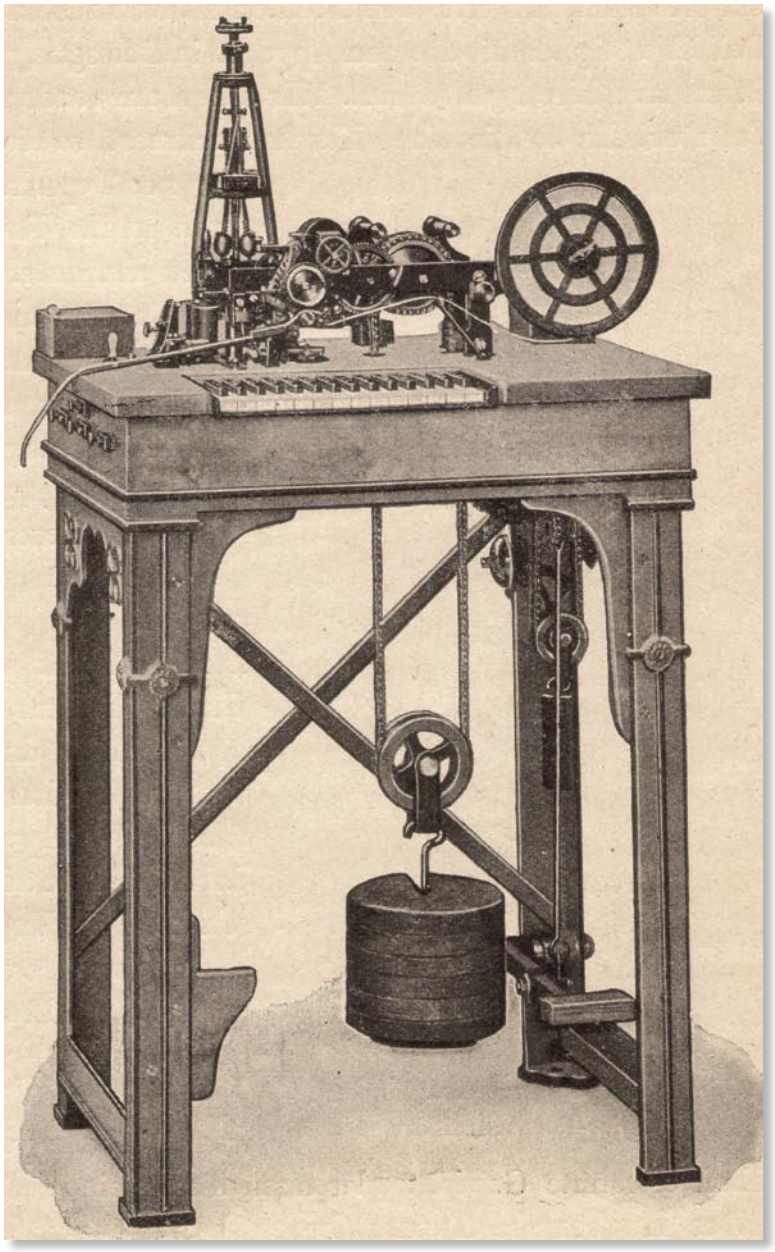
Beginning of the ninetieth century proceeded in the spirit of the inventions that started new chapter of the long-distance communication. Invention of electromagnetism, electricity and electrochemical sources as well as the inventions of Ampér, Schilling, Weber and Gauss moved the development towards the first telegraph apparatus designed by American Samuel Morse in 1837. His telegraph recorded signs on a moving strip of paper by means of a cutter controlled by electromagnet responding to interruption of the electric current in the circuit. The signs represented a chain of fullstops and dashes of which Alfred Vail and Samuel Morse elaborated Morse alphabet used till now. Since that moment, the long-distance communication undergoes rapid development. In 1844, Vail and Morse invented a telegraph key and at the same time, the first long-distance telegraph line was built between Washington and Baltimore.

The first line of Austrian telegraph network started its operation on the route between Vienna and Brno in 1847. The same year, it was extended via Olomouc to Prague with the terminal on Masaryk´s railway station.

The embossing telegraphs were gradually replaced by colour printing telegraphs. In 1855, D.E. Huges designed the first letter telegraph, which printed the letters of common alphabet instead of the Morse alphabet. In 1866, the first intercontinental communication, using deep-sea cable between the U.S.A. and Europe, was put into operation. The same year, Prussian Army used new telegraph detachments for the first



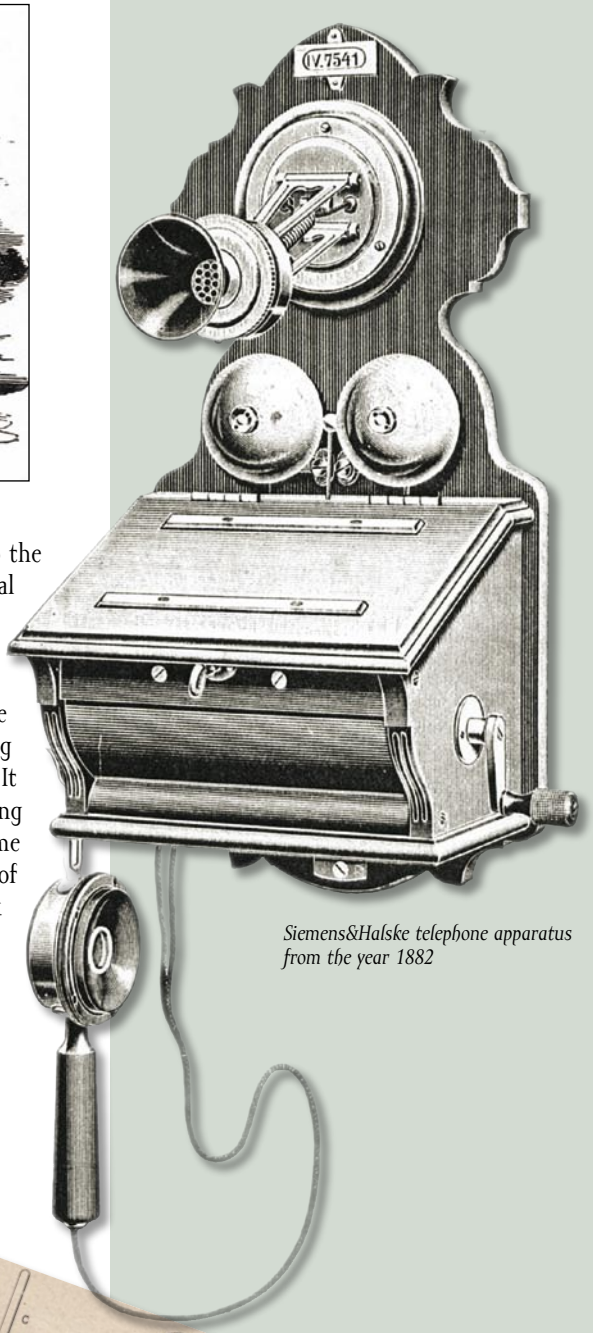
Morse-system telegraph apparatus



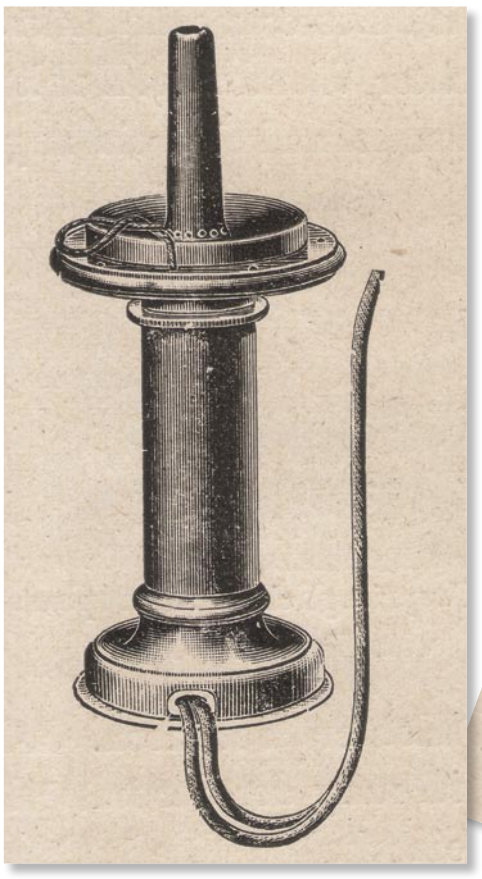
Huges´ Telegraph

Telephonists of French Army in the year 1893

time in mass scale in the Battle of Hradec Králové. The importance attached to the new technology by Prussian military circles may be proved even by the initial profession of the founder of later Siemens AG concern. In 1847, when Werner Siemens was establishing his first company, he was Lieutenant of Artillery.
In 1876, Alexander Graham Bell took out a patent for telephone apparatus which was expected to open up the long-distance communication sphere for wide public One year later, the first European telephone line was already operating in Berlin. The first Prague telephone exchange started its operation in 1882. It was located at Malé náměsti and its eleven subscribers responded by exclaiming "ha-hey!" In June 1891, they built a view tower on Petřín hill in Prague. It became a cradle of Czechoslovak telegraphy, radio and television. The beginnings of Czechoslovak electronic industry go back as far the year 1884, when František Křižík founded his factory in Prague-Karlín.



Siemens&Halske telephone apparatus from the year 1882



Bell's earphone improved by Siemens

Mix & Genest telephone receiver

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ПОЛЕВЫЕ ТЕЛЕФОНЫ,

ИХЪ УСТРОЙСТВО, ПРИМѢНЕНІЕ И ИСПРАВЛЕНІЕ
средствами войсковыхъ частей.

Пособіе для офицеровъ, телефонныхъ и учебныхъ командъ.

Сост. В. Мамонтовъ.

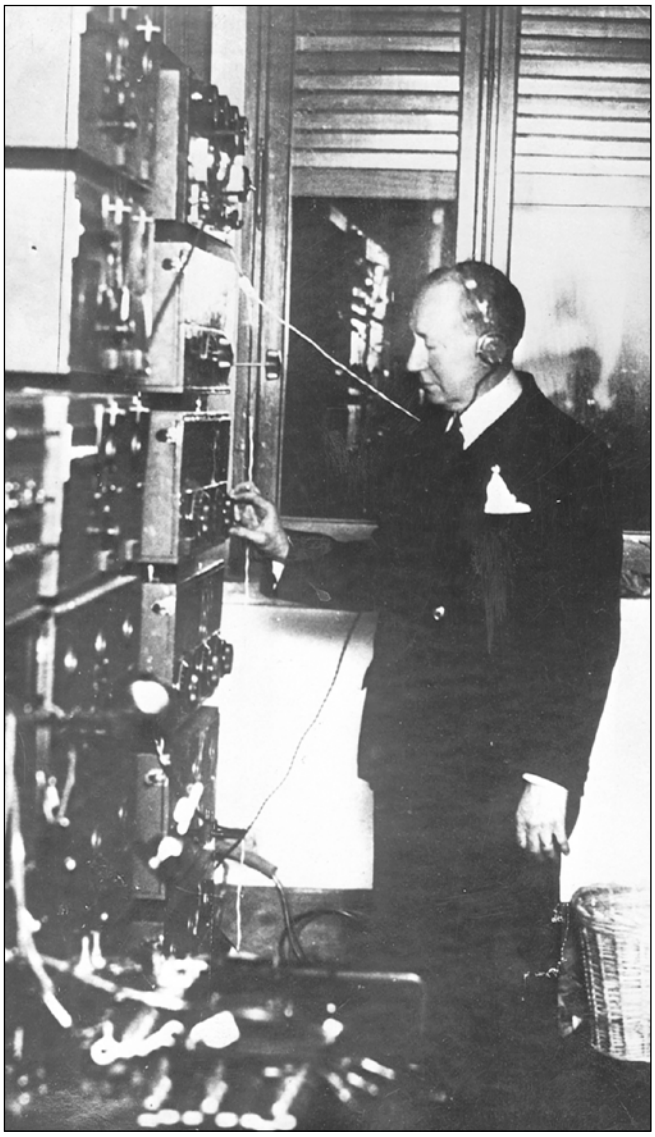
Издалъ В. Березовскій

КОМИССІОНЕРЪ ВОЕННО-УЧЕБНЫХЪ ЗАВЕДЕНІЙ
С.-Петербургъ, Колокольная, № 14.
1911.

Russian regulations for use of field telephones from the year 1911

The most important turn in the history of the long-distance communication was made by the experiments of Italian radio-technician, amateur Guglielmo Marconi and Russian teacher of physics Alexander Stepanovich Popov at Mine School in Kronstadt. In 1896, Marconi demonstrated a wireless telegraphy up to the distance of 8 km to British representatives of Post Office, Army and Navy. One year later, he acquired the patent called "Wireless Telegraphy by Means of Hertz Waves". British *HMS Yunio* ship was the first war ship equipped with spark radio station in 1899. In December 1901, Marconi established the first transatlantic wireless communication by means of mechanically produced electromagnetic waves having frequency of about 15 kHz. The same year, the British used the wireless telegraphy on the battlefield of Boer War for the first time. The wireless telegraphy got great credit in the battles of Russia-Japan War (1904-1905). Armed Forces of all the world powers discovered the importance of the new "weapon" and began systematic development of telegraph troops.

However, the continually worsening international situation was heading towards worldwide conflict, towards Big War, in the course of which the newly invented communication means were used in mass extent for the first time.



Guglielmo Marconi

WORLD WAR I – YEARS 1914–1918

Charged atmosphere hanging in the air over Europe at the beginning of the second decade of the twentieth century ended on June 28, 1914 by the shots of Serbian assassin in Sarajevo. Assassination of Austrian successor to the throne František Ferdinand d´Este worked as an igniter. One month later, on July 28, 1914, Austria-Hungary declared war on Serbia and set off an untenable wave of Europe-wide preparations for war. In the course of several weeks, the conflict errupted in an unprecedented extent and it was called Big War that time (people couldn't imagine that there would be some new world conflict after termination of the existing one).

On one side, there were Central Powers headed by Germany and Austria-Hungary that engaged themselves in the Big War and, in 1914, it was Turkey and, later on, Bulgaria that joined the powers in the war. On the other side - the states of Entente headed by England, France, Russia, Serbia and Belgium, reinforced by Japan, Italy and the United States of America till the year 1917.

After the outbreak of World War I, the Czechs and Slovaks joined the colours of Austro-Hungarian Army where they represented nearly 12.9 or 3.6% of personnel. Since January 1912, in spite of the fact that all the powers discovered the importance of signal troops already before the war, the Austro-Hungarian Army disposed of only one telegraph regiment (k .u. k Telegraphenregiment) under the command of Lt. Col. František Stranský from Stranograd. The regiment, consisting of four battalions was based in St Pölten. The Battalions No. 1 and 4 were stationed directly in St. Pölten, Battalion No. 2 in Sopron and Battalion No. 3 in Kerneuburg. It was an elite regiment where only a minimum the Czechs and Slovaks served in the years 1912–1918. A little more Czech and Slovak graduates passed the Telegraph Courses for Cavalry and Infantry held regularly every year in Tuln. Each of the sixteen Austro-Hungarian Corps Commands operated a Telegraph Corps School. The Czech and Slovak soldiers could be found even among those graduates.

In the moment when the war operations were launched, tens of thousands of the Czechs and Slovaks stayed on the territory of the Entente powers. A part of

Branch insignia of Austro-Hungarian Telegraph Corps

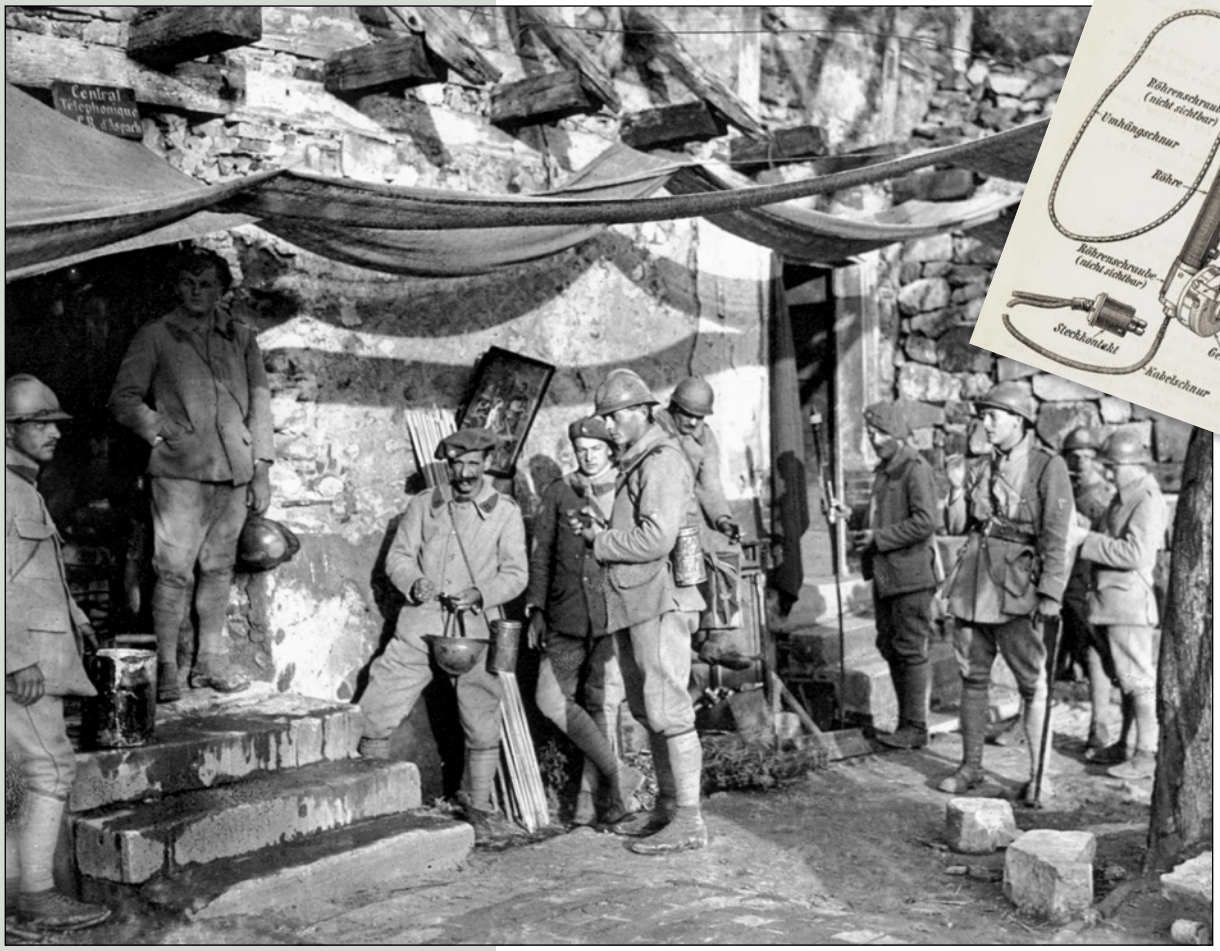
Austrian signalmen on Italian front by Socha River

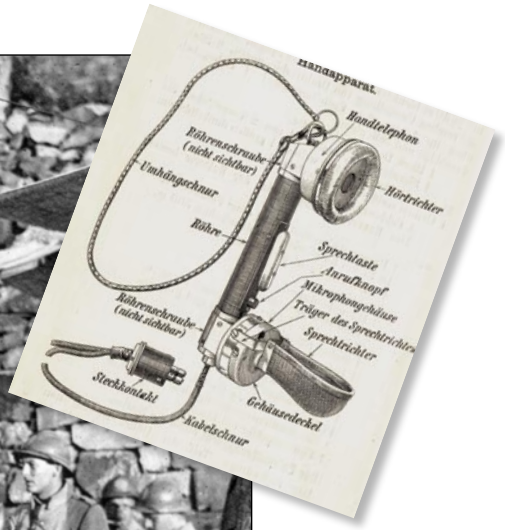
Sleeve armlet of Austro-Hungarian Telegraph Corps used before introducing collar insignia

Austrian radio station on Italian front

them was convinced that the victorious war against Austria-Hungary and Germany will concurrently be the beginning of independence of their nation. This idea led to the first attempts to create detached Czechoslovak units. The Czechs and Slovaks began voluntarily join French, Russian, British and Serbian Armed Forces.

As early as 1914, the Czechs formed a company counting 250 men within the French Foreign Legion. It was soon called "Compagnie Nazdar" (*"Nazdar" Company*). On November 14, 1915, Czech Committee issued a declaration from abroad involving the following sentence for the first time: *...We are striving for independent Czechoslovak state ..."* It was one of the important steps on the way towards development of our own Armed Forces. On December 19, 1917, French President Raymond Poincare issued a Decree authorizing formation of our own Czechoslovak Army in France. Since autumn 1917, Czechoslovak soldiers were concentrated in Cognac and on January 12, 1918, they announced establishment of 21st Rifle Regiment. On May 20, 1918, they established 22nd Rifle Regiment in nearby Jarnak and on June 22nd, 1918, the two regiments formed a Czechoslovak Brigade in France stationed in Darney. In October, the Czechoslovak soldiers excelled at Terron and Vouziers. Shortly afterwards, on December 3, 1918, they established 23rd Rifle Regiment and one day later, the Brigade was reorganized to 5th Czechoslovak Rifle Division which returned to its new homeland, the Czechoslovak Republic. The Czechoslovak units in France consisted of about 9,600 men in total; 650 of them fell in the battles.





Receiver of Austrian telephone apparatus

Battalion Headquarters in Michelbach with telephone central

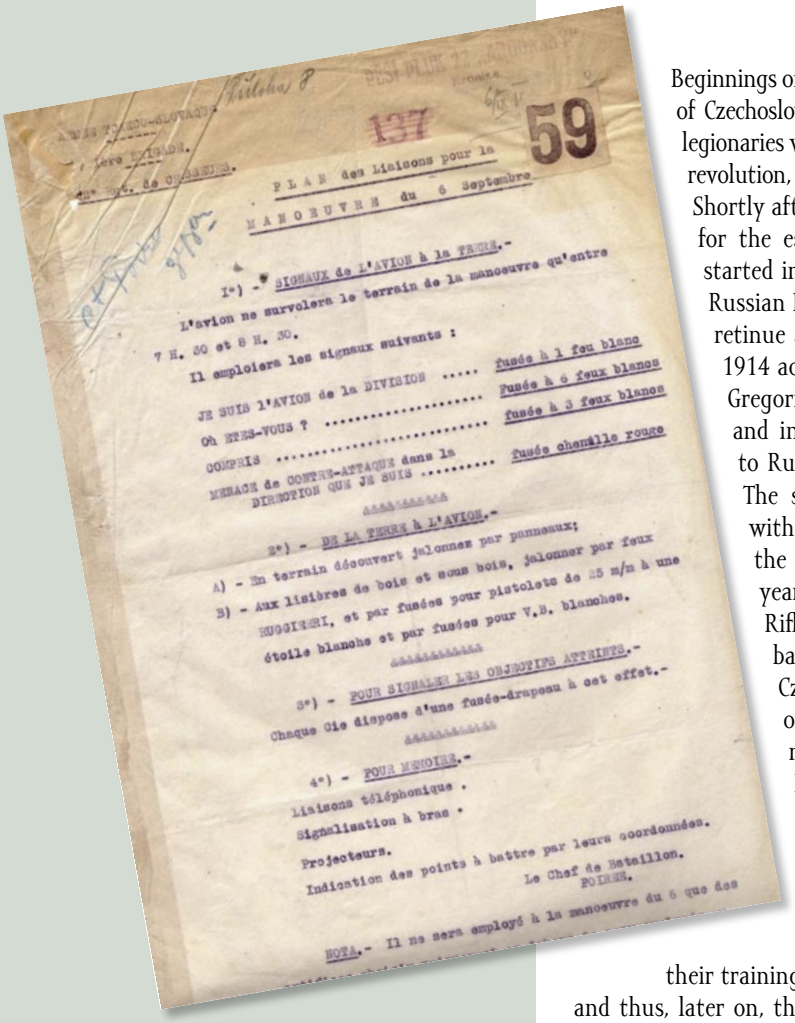
Telephone unit of the 21st Czechoslovak Rifle Regiment in the Battle of Vouziers

Telephonists of the 21st Czechoslovak Rifle Regiment in a trench by Terron

On January 17, 1917, Czech and Slovak prisoners of war (POW) established Czechoslovak Voluntary Corps in the POW Camp at Santa Maria Capua Vetere town nearby Naples, Italy. On April 21, 1918, Italian Government acknowledged existence of autonomous Czechoslovak Army which resulted in gradual establishment of 31st, 32nd, 33rd, 34th, and 35th Regiments of Czechoslovak Legions in Italy. Since November 1918, the regiments formed 6th and 7th Rifle Divisions. The most important success of Czechoslovak soldiers was achieved in the battles for Doss´Alto in North Italian Monte Baldo massif. Czechoslovak Legions in Italy consisted of nearly 20,000 men; 350 of them fell in the battle.

Communication within the Czechoslovak units in France and Italy was provided namely by telephone and telegraph units. Responsibility for the communication among individual rifle regiments of Czechoslovak Legions in France was in hands o about 65 men (40 of them were telephone operators), of the signalling and telephone detachments. Within their training, members of the detachments were gradually sent to telegraph and telephone courses of the French Armed Forces. Beside other things, they learned the signalling by arms, light signal apparatus, signal flares, etc. Radio-telegraphic communication of the Czechoslovak Legions in France was provided by French units. It was similar in Italy. On November 17, 1918, they established Czechoslovak Army Corps in Italy. After its return to Czechoslovakia, the Corps disposed of one Telegraph Detachment providing service for the Corps Command (61 men), Telegraph Company of the 6th Division (115 men) and Telegraph Company of 7th Division (115 men). Radio-telegraphic communication (R/TC) of the Corps was provided by Radio Section (40 men) consisting of Italians only. With regard to the fact that these units were engaged in the occupation of Slovakia, they will be discussed in more details in the following chapter.

French operator of Czechoslovak radio station in Champagne



PLAN des Liaisons pour la MANOEUVRE du 6 Septembre

137

59

I°) - SIGNAUX de l'AVION à la TERRE.-

L'avion ne survolera le terrain de la manoeuvre qu'entre 7 H. 30 et 8 H. 30.

Il emploiera les signaux suivants :

JE SUIS l'AVION de la DIVISION ..... fusée à 1 feu blanc

OU ETES-VOUS ? ..... fusée à 2 feux blancs

COMPRIS ..... fusée à 3 feux blancs

MENACE de CONTRE-ATTAQUE dans la DIRECTION QUE JE SUIS ..... fusée chenille rouge

2°) - DE LA TERRE à l'AVION.-

A) - En terrain découvert jalonnes par panneaux;

B) - Aux lisières de bois et sous bois, jalonner par feux HUGGINENI, et par fusées pour pistolets de 25 m/m à une étoile blanche et par fusées pour V.B. blanches.

3°) - POUR SIGNALER LES OBJECTIFS ATTEINTS.-

Chaque Cie dispose d'une fusée-drapeau à cet effet.-

4°) - POUR RENSEIGNER.-

Liaisons téléphonique .

Signalisation à bras .

Projecteurs.

Indication des points à battre par leurs coordonnées.

Le Chef de Bataillon.

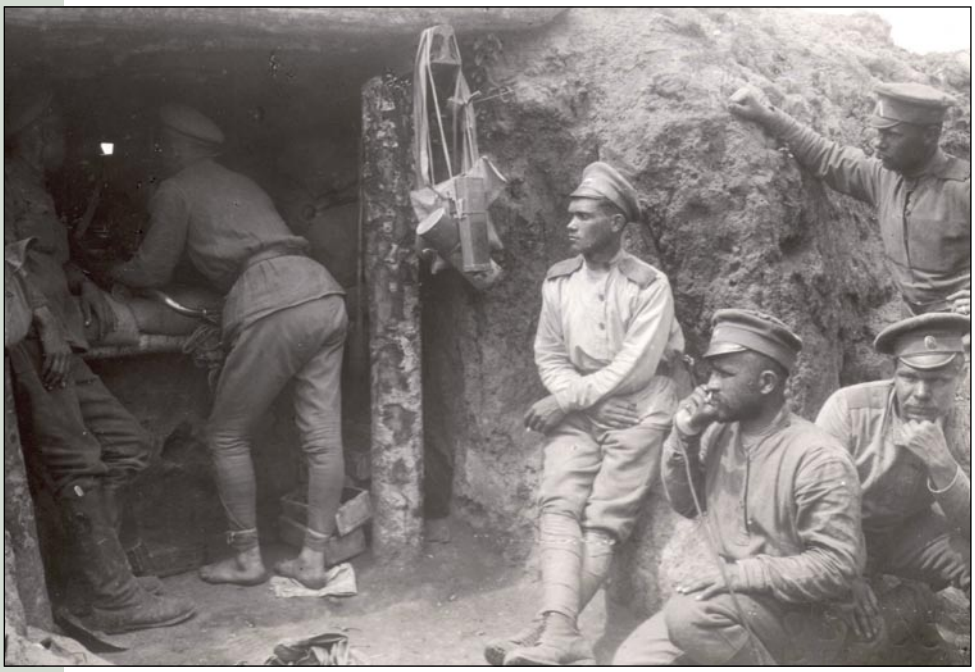
POINAR.

NOTA.- Il ne sera employé à la manoeuvre du 6 que des

Signal communication plan for the manoeuvres of the 22nd Czechoslovak Rifle Regiment on September 6, 1918

Beginnings of Czechoslovak Signal Corps are connected namely with the operation of Czechoslovak Legions in Russia. It was the largest number of Czechoslovak legionaries who were fighting in the years of WWI. Moreover, after the Bolshevik revolution, their stay there was prolonged till the year 1920.

Shortly after the outbreak of the war, compatriots in Russia began to strive for the establishment of a core of Czech voluntary unit. Its formation started in August 1914 under the name of Czech Retinue *(Česká družina)*. Russian Lt. Colonel Andrej Lofickij was appointed its first commander. The retinue swore soldier's oath on October 11, 1914 in Kiev (September 28, 1914 according to Julian calendar used in Russia till January 1918 when Gregorian calendar was put in use). However, later on, it was divided and individual companies and platoons of the retinue were attached to Russian regiments, brigades and divisions as reconnaissance units. The success resulted in a decision to replenish the Czech Retinue with rapidly growing number of the Czech and Slovak POWs from the formations of Austro-Hungarian Army. At the beginning of the year 1916, the Czech Retinue was transferred into Czechoslovak Rifle Regiment. Thanks to the high tide of the volunteers, its battalions could serve to form two infantry regiments and to create Czechoslovak Rifle Brigade. Each of the rifle regiments disposed of a signal battalion. In September 1916, with regard to the necessity to install and maintain telephone communication, the Brigade headquarters used the soldiers who were familiar with the pioneer and telephone work from their service in Austrian Army and established a special technical battalion. At the end of the year 1916, based on the order of Command of Russian Army, several Czechoslovak soldiers were sent to operate secret spy-stations serving to monitor the enemy telephone calls. Within their training, the selected soldiers passed through a radiotelegraphic training and thus, later on, they could form a basis of Czechoslovak Radiotelegraph Company. On March 15 (2), 1917, they issued an order establishing a Signal Battalion at the Command of the Czechoslovak Rifle Brigade and on June 21 (8), 1917, they established Czechoslovak Replacement Half-Company gathering the volunteers from field engineer, technical and signal units. It was subordinate to the Replacement Battalion of the newly established 3rd Czechoslovak Rifle Regiment. On August 28 (15), 1918, the Half-Company was reorganised to 2nd Detached Technical Company consisting of Signal Detachment, Field Engineer Detachment and Technical Park.

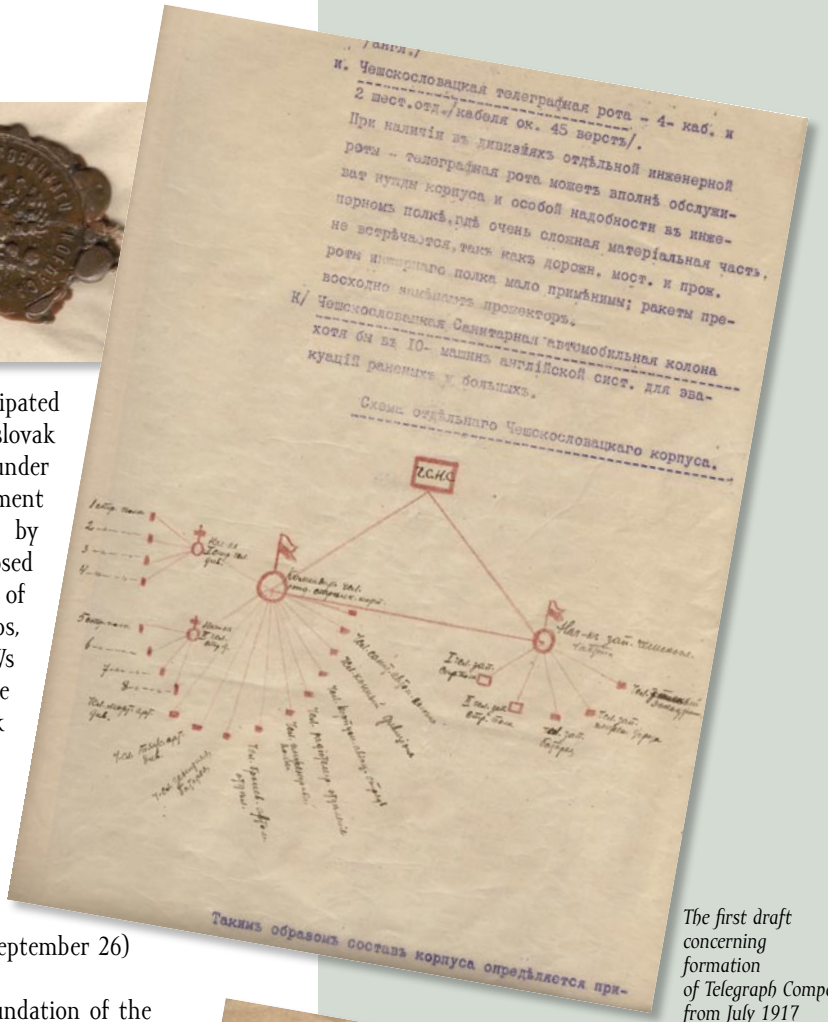


A telephonist in a trench by Zborov

Common seal of Czechoslovak Army Corps

In June 1917, the Brigade took up the positions nearby Ukrainian town of Zborov. On July 2 (June 19) 1917, Czechoslovak troops broke the Austrian defence and achieved one of the most important victories in modern history of our countries. The following units participated in the battle: within the formation of the 1st Czechoslovak Rifle Regiment it was Regimental Signal Detachment under the command of WO Jaroslav Skála; the 2nd Rifle Regiment disposed of Regimental Signal Detachment headed by WO Bonifac Káňa and 3rd Czechoslovak Rifle Regiment disposed of Regimental Signal Detachment under the command of WO Jan Šípek. As a result of the success of Czechoslovak troops, Russian command allowed unlimited recruitment of POWs into Czechoslovak troops which enabled preparation of the formation of an Army Corps as a core of the Czechoslovak National Army in Russia.

Czechoslovak Telegraph Company occurs in the initial organisational plans of the future Army Corps as early as at the end of July 1917. However, when the Czechoslovak Army Corps, consisting of two divisions, was established on the basis of the Order of the Chief of Staff of Supreme Commander of Russian Forces, No. 613, dated October 9 (September 26) 1917, no telegraph company existed in its formation yet.

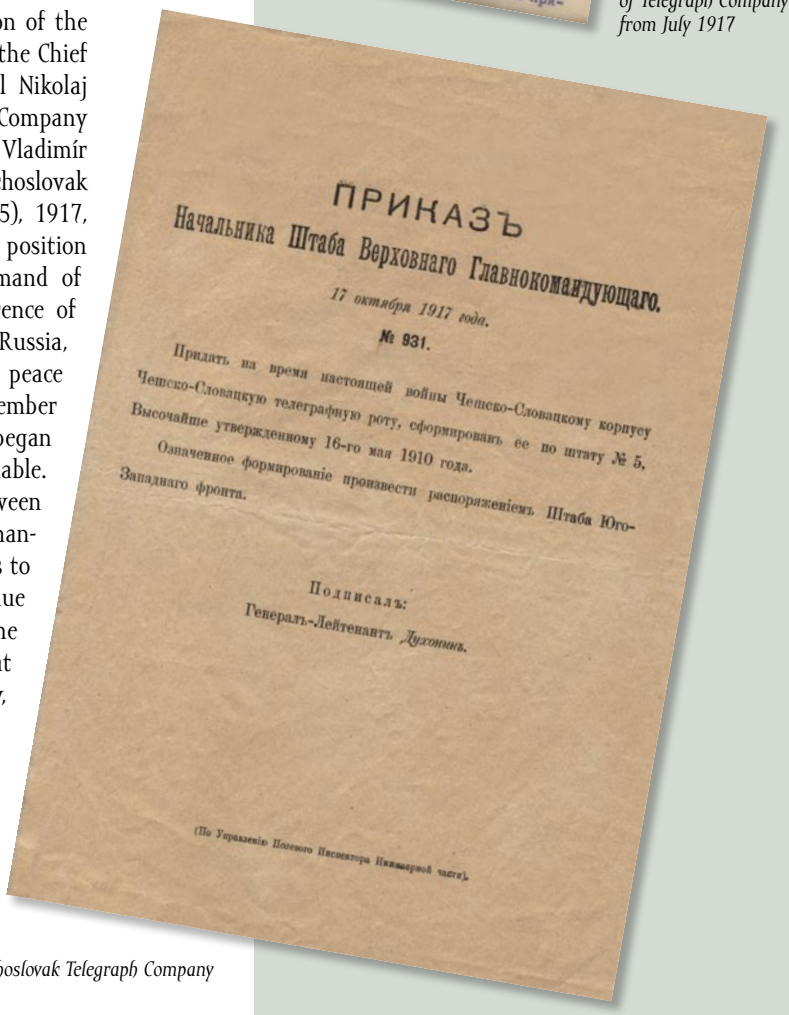


The first draft concerning formation of Telegraph Company from July 1917

October 30 (17), 1917 became a historical day for the foundation of the future Czechoslovak Signal Corps. Based on the Order No. 931 of the Chief of Staff of Supreme Commander of Russian Forces Lt. General Nikolaj Nikolayevich Dukhonin, they established Czechoslovak Telegraph Company that day. On November 4 (October 22), 1917, Maj. General Vladimír Nikolayevich Shokorov took over the command of the Czechoslovak Army Corps. Only three days later, on November 7 (October 25), 1917, Bolshevik revolution came about in Petersburg which changed the position and future fate of Czechoslovak Legions in Russia. The Command of Czechoslovak Resistance abroad tried to achieve a non-interference of Czechoslovak troops into internal political struggle proceeding in Russia, which developed into civil war. However, after conclusion of peace agreement between Germany and Russia which took place in December 1917 in Brest Litevsk, the Army Corps of forty thousand soldiers began to fight for its own saving. Its stay in Ukraine became untenable. At the beginning of 1918, heavy battles for Kiev proceeded between Ukrainian Central Council and Bolsheviks. At the same time, German-Austrian troops were approaching. The only possible solution was to move the Czechoslovak Legions quickly to France and to continue in the combat alongside of our allies there. For this reason, the Branch of Czechoslovak National Council for Russia declared that the Czechoslovak troops in Russia are a part of Czechoslovak Army, being under protectorate of France.

Czechoslovak Telegraph Company, the first Order of which was announced in Kiev on January 10, 1918 (December 28, 1917) was gradually developed in this dramatic period.

The same day, Inspector of Czechoslovak Reserve Troops Maj. General Jaroslav Červinka issued an Order concerning its formation.



ПРИКАЗЪ
Начальника Штаба Верховнаго Главнокомандующаго.
17 октября 1917 года.
№ 931.

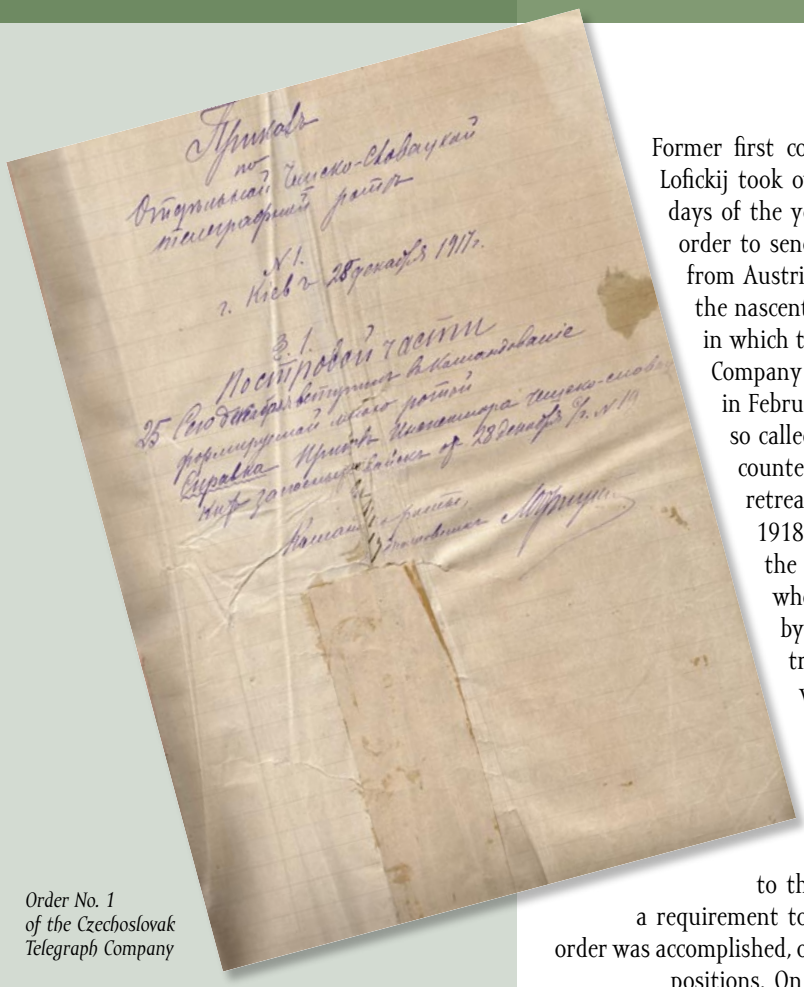
Придать на время настоящей войны Чешско-Словацкому корпусу Чешско-Словацкую телеграфную роту, сформировать ее по штату № 5, Высочайше утвержденному 16-го мая 1910 года.

Означенное формирование произвести распоряженіемъ Штаба Юго-Западнаго фронта.

Подписалъ:
Генералъ-Лейтенантъ Духонинъ.

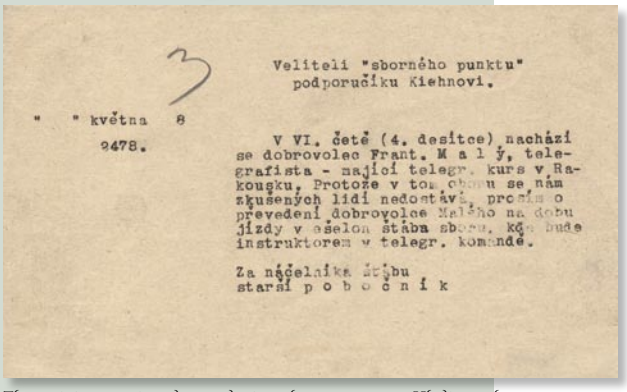
(По Управленію Полевого Инспектора Инженерной части).

The Order concerning formation of Czechoslovak Telegraph Company



Order No. 1 of the Czechoslovak Telegraph Company

Former first commander of the Czech Retinue, Russian Lt. Colonel Andrej Lofickij took over command of the Company three days earlier. In the first days of the year 1918, individual regiments of the Army Corps were given order to send their soldiers, having already passed the telegraph training from Austrian-Hungarian and Russian Army and other skilled soldiers to the nascent Telegraph Company. However, the chaotic and tense situation in which the Czechoslovak troops were found made the formation of the Company very complicated. The first members of the Company, coming in February 1918 from their regiments to Kiev, were accommodated in so called Marian Park. In the last days of February, when its strength counted 24 men already (including officers), the Telegraph Company retreated from Kiev to Darnice. At the turn of February and March 1918, after delaying actions with Germans at Kiev and Bakhmach, the Czechoslovak Army Corps started its movement across the whole Russia to Vladivostok from where it should be transported by sea to the fighting France. The movement meant travelling by train thousands of kilometres through the country shaken by war and controlled only partially by Central Soviet Government. After its transfer to Piriatin, the Telegraph Company joined the Czechoslovak Army Corps Headquarters and together with the Corps it moved to Penza in March 1918. On March 28, 1918, Company Commander Lt. Col. Lofickij was detached to Rifle Division II and Junior Captain František Svozil was appointed to this position. Only two days earlier, Soviet Government issued a requirement to release Russian officers from Czechoslovak troops. After the order was accomplished, only indispensable military specialist could stay in the command positions. On its further way eastward, the Telegraph Company continued moving together with the 5th and 8th Regiment of the Rifle Division II. Till the end of April, the Company Orders were written in Russian language. The Company started its movement to Vladivostok on March 10, 1918 in Piriatin which was successfully accomplished only after long three months, on June 11, 1918. Personnel of the unit were continuously replenished in the course of the movement so that the strength of the Company after its arrival to Vladivostok was 2 officers and 72 men. In a short time, they established a school and started training. The Company took over 16 telephone stations connecting individual parts of the Czechoslovak troops in Vladivostok and installed telephone line to hospital. Within 10 days after its arrival, the strength of the Company, sometime using the name of Detached Czechoslovak Telegraph Company, grew up to 230 men. On July 3,



Veliteli "sborného punktu"
podporučíku Kiehnovi.

" " května 8
2478.

V VI. četě (4. desitce) nachází se dobrovolec Frant. M a l ý, telegrafista - mající telegr. kurs v Rakousku. Protože v tom oboru se nám zkušených lidí nedostává, prosím o převedení dobrovolce Malého na dobu jízdy v ešelon stábu sboru, kde bude instruktorem v telegr. komandě.

Za náčelníka štábu
starší p o b o č n í k

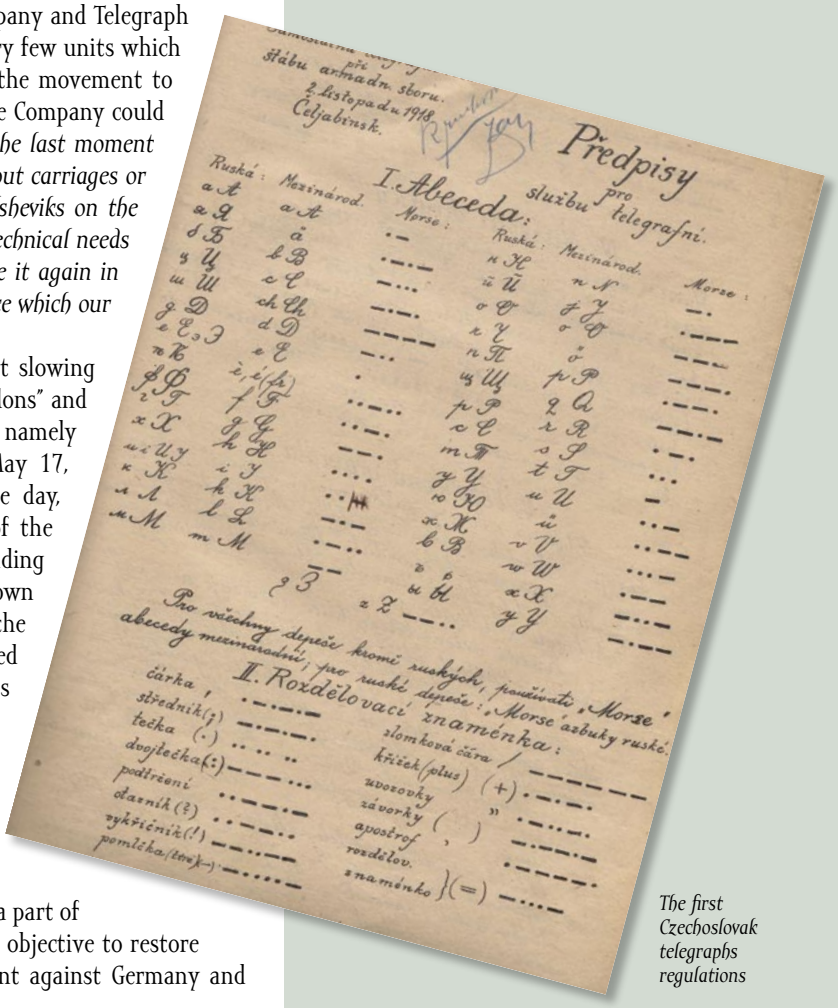
The training continued even during the transport to Vladivostok

Telephone central of the 8th Regiment

Signalmen of the Rifle Division II in Vladivostok

1918, Lt. Col. Lofickij became superior to the Telegraph Company again but now as a Commander of Technical Battalion having the Engineer Company and Telegraph Company subordinated. The Telegraph Company was one of very few units which did not hand over nearly any material to Bolsheviks during the movement to Vladivostok in spite of its being under threat. Thanks to it, the Company could immediately start its operation: *"Technical material taken in the last moment in Kiev was all brought to Vladivostok. We were carrying it without carriages or horses and, therefore, not a single apparatus was given to Bolsheviks on the way in spite of the fact that the regiments handed over all the technical needs in Penza and we didn't even dream that time that we could use it again in Russia. Now, being in uncertain situation, we were the only source which our regiments could derive from and we also helped them ..."*

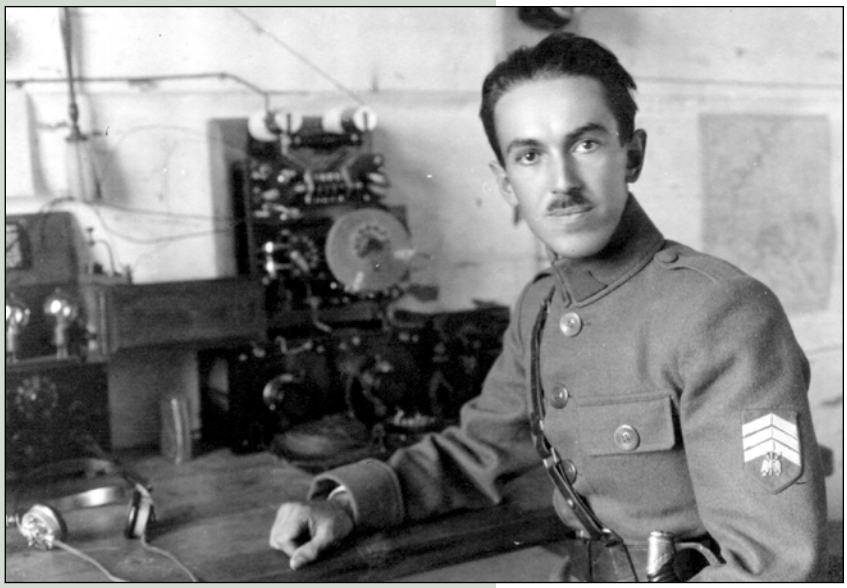
However, movement of major part of Czechoslovak units kept slowing down. Soviet Government asked for disarmament of the "echelons" and the contradictions were growing. They burst in full extent namely at the end of May, after the conflict in Chelyabinsk, on May 17, 1918, after arresting eleven Czechoslovak soldiers. The same day, Czechoslovak troops occupied the whole city and, in spite of the fact that the disputes were settled, they decided to stop handing over of weapons and to break the way eastward by their own forces. In this way, the conflict with Soviet power reached the phase of open hostility. Czechoslovak soldiers gradually occupied individual towns situated on the Trans Siberian Link and in its close vicinity. In June 1918, the legionaries were fighting in the surroundings of Buzuluk where Czechoslovak troops were to return after more than twenty years in the period of World War II. The initial objective of the Czechoslovak combat operations i.e. providing of safe transport of the Army Corps to Vladivostok was gradually changing under the influence of international situation. The Czechoslovaks became a part of military activities of the Entente powers in Russia having and objective to restore Russian Republic which would renew the combat on the front against Germany and



The first Czechoslovak telegraphs regulations

The first official cap device of Czechoslovak Army – 1917

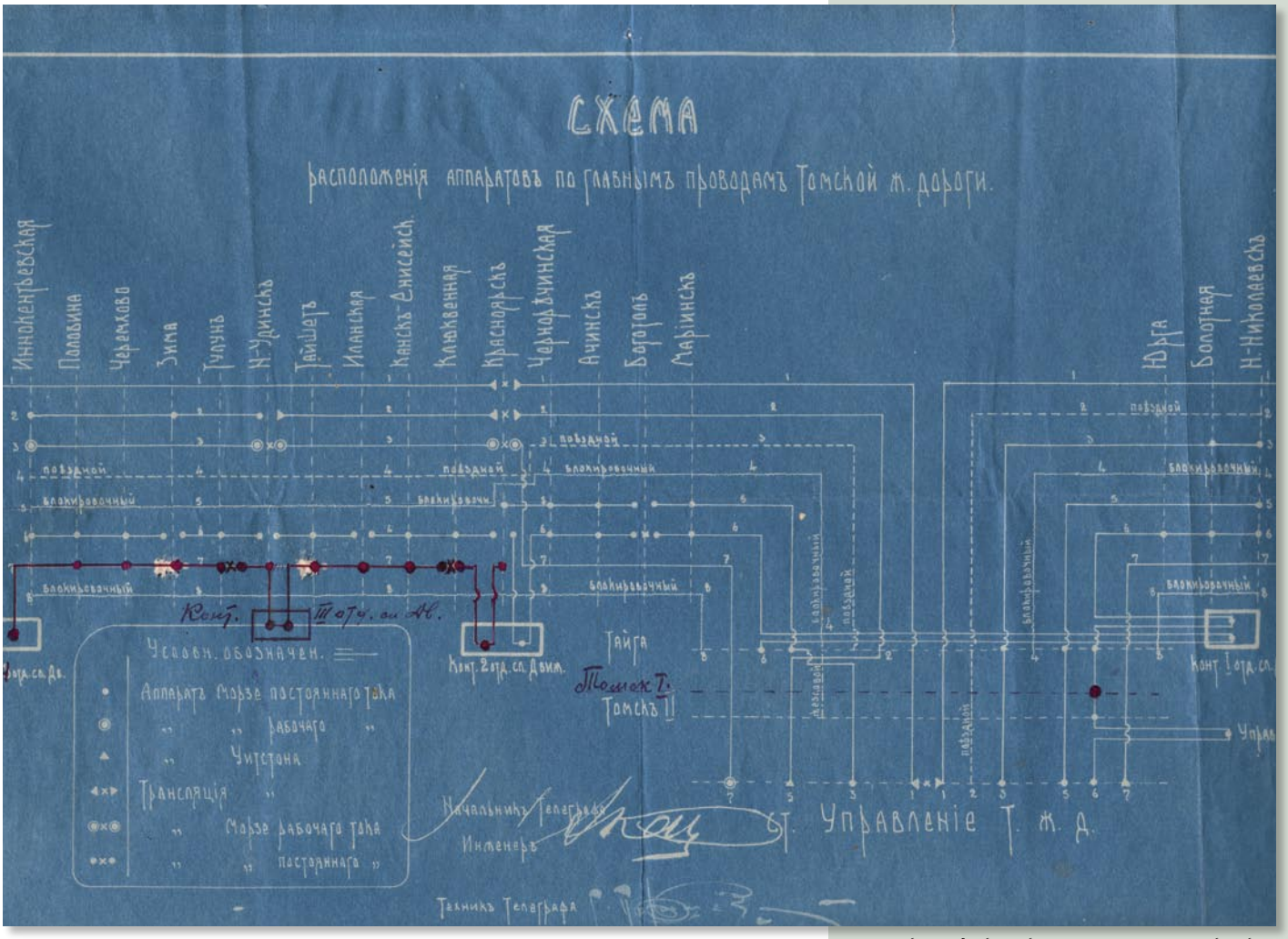
Austria-Hungary. Occupation of Trans Siberian Link by mere two divisions of the Army Corps became one of the most important Chapters of Czechoslovak military history. The Volga Basin (Samara) Front, which was expected to change into renewed anti-German front in future, became the main anti-bolshevik battleground. Under the command of Colonel Stanislav Čeček, the Czechoslovak units were fighting in coordination with Cossack troops and Russian Army against the Bolshevik battalions there. On June 29, 1918, the first part of the Czechoslovak troops, concentrated in Vladivostok under the command of Lt. General Mikhail Konstantinovich Diterisch, so called Eastern Czechoslovak Group, began fighting against Bolsheviks, too. Having successfully overrun the whole port, the Czechoslovak troops started the operation with an objective to open the way which would enable them to join the remaining components of the Czechoslovak troops staying in Ural. They gradually captured important cities of Yekaterinburg and Kazan. In the middle of July, the Siberian Group of Colonel Radola Gajda occupied Irkutsk and successfully open the way along Baikal Lake towards the units making the way from Vladivostok. The operation was successfully accomplished on August 31, 1918, when, after three months, the Czechoslovak troops joined again into one unit. This success of the Czechoslovak legionaries who seized the territory reaching the size of the whole Europe had immense international response. Till the middle of September, the whole Siberia was in hands of Czechoslovak troops and other allied units.



Commander of the Czechoslovak Radio Station I Tomáš Pištělka

On July 5, 1918, Czechoslovak Telegraph Brigade together with the other units of Vladivostok Group started its way to the West. In Vladivostok, it left one detachment under the command of WO František Elias for the communication support of the staff. Trained soldiers of the Company were gradually left to operate the telephones and telegraphs at individual occupied railway stations. Since July 7, 1918, in the course of its advancement to the West, the Telegraph Company stayed six weeks in Nikolsk Ussuriyski where it established a Telegraph School right inside the train because of an acute shortage of trained

Czechoslovak Radio Station I in Cheliabinsk in December 1918



Scheme of telegraph communication on Tomsk railway

telegraphers. In the course of the battles with Bolsheviks, they were also successful to capture two complete Telefunken and Siemens-Halske radio stations with accessories. One radio station was acquired by the Army Corps before its retreat from Ukraine. On November 22 (9), 1918, Second Lieutenant Alexej Hradil was appointed commander of that radio station. However, the radio station was handed over to Bolsheviks in Penza and its crew consisting of three soldiers who passed the training of secrete spy stations was attached to Telegraph Company. One of the captured radio stations was successfully put in operation and thanks to that, based on the Order of the Eastern Czechoslovak Battalion No. 48, dated July 19, 1918, they could established the 1st Czechoslovak Radio Station. Marksman of the Telegraph Company Tomáš Píštělka became commander of the station on July 26, 1918. In the meantime, the second radio station was also repaired by the help of technicians of British cruiser Suffolk, harbouring in Vladivostok. The 1st Czechoslovak Radio Station was established in Nikolsk Ussuriyski nearby the railway station and corresponded with the Suffolk in Vladivostok.

The Czechoslovak Telegraph Company was detached from the main forces of the Czechoslovak Army Corps till the autumn 1918. Headquarters of the Corps necessarily needed a signal service for its activity that time. Till November 1918, this task was performed by the Signal Detachment of the Czechoslovak Army Corps. Its beginnings were more than modest. On March 9, 1918, after the retreat from Kiev to Piriatin, WO Otakar Zahálka was appointed the Chief of Signal Service at Czechoslovak Army Corps. All the remaining personnel of the Signal Service consisted of one signalman only. They had no communication material at disposal. Activity of the Signal Service consisted in handing over the telegraphic messages to Russian railway offices and controlling their correct dispatch. Gradually, they began to develop a Signal unit of the Czechoslovak Army Corps having the task to provide internal telephonic communication and to

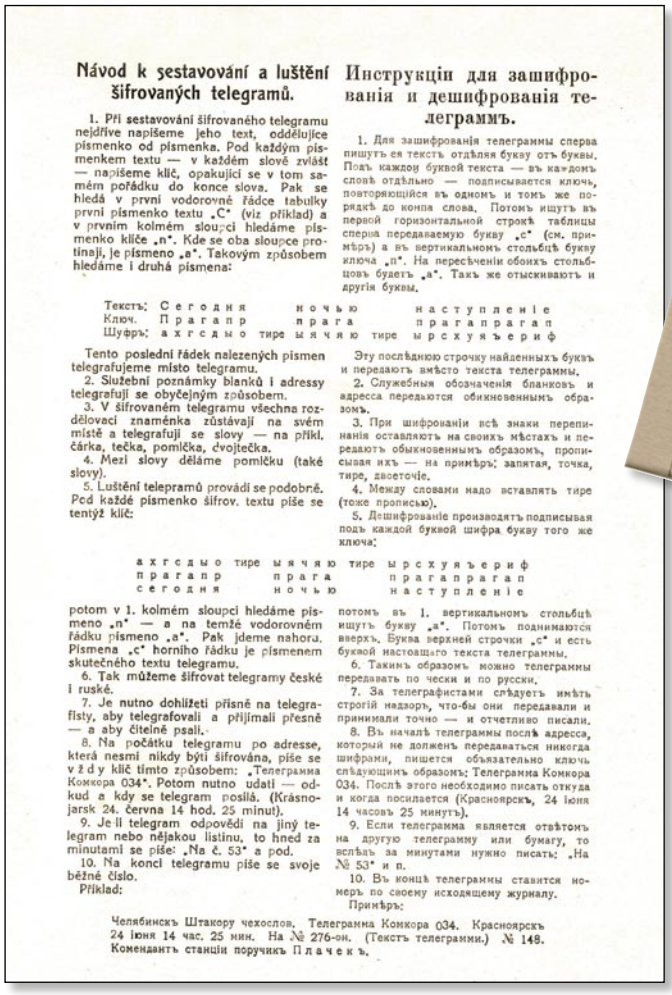
Sleeve insignia of the member of Czechoslovak Telegraph Company

General Syrový in the Field Telegraph wagon

acquire needful number of telegraphers for dispatching of the most important telegraphic messages as soon as possible. At the beginning, the manpower of the Signal unit consisted of 14 men.

The unit received the first ten pieces of telegraph apparatus from Telegraph Company in March 1918. Thanks to them, it could establish communication among individual carriages of the headquarters echelon. The telegraphic communication of individual echelons was provided by Russian telegraph but its use was very complicated and lengthy. Training of the members of the Signal unit continued during the whole time of the movement. At the end of May 1918, Headquarters and the Signal unit moved to Cheliabinsk. Step by step, they succeeded in increasing the manpower of the unit up to 90 men. In addition to this, the division headquarters gradually formed the telephonic, telegraphic and automobile units under the command of the Chief of Signal Service of respective division. The Signal Service on the level of regiments was built in the same way. In August 1918, the Signal unit established a field telegraph station providing direct communication with the front. The telegraph station was installed right in one of the railway carriages and when Siberian Government allocated the Czechoslovaks the telegraph line No. 77, passing through the main railway stations on the Trans-Siberian Railway, the direct communication with rear area was expanded. On August 31, 1918, WO Zahálka submitted a project for establishing Telegraph and Telephone Section at the Army Corps Headquarters. Individual telegraphic stations on the front and deep in the rear area were manned by highly trained telegraphers from the Signal unit. In addition to the telegraph and telephone network, the unit used motorcycle/bicycle couriers, touring car, despatch riders and runners. In October 1918, when the commander of Czechoslovak Troops became also Commander-in Chief of the West Front involving the Czechoslovak and Russian units, the Signal Service needed to be substantially enlarged and improved. For this reason, the Czechoslovak Headquarters were allocated a special team of Russian telegraphers and technicians.

Telephone operators at forward observation post



Návod k sestavování a luštění šifrovaných telegramů.

1. Při sestavování šifrovaného telegramu nejdříve napíšeme jeho text, oddělujíce písmenko od písmenka. Pod každým písmenkem textu — v každém slově zvlášť — napíšeme klíč, opakující se v tom samém pořádku do konce slova. Pak se hledá v první vodorovné řádce tabulky první písmenko textu „C" (viz příklad) a v prvním kolmém sloupci hledáme písmenko klíče „n". Kde se oba sloupce protínají, je písmeno „a". Takovým způsobem hledáme i druhá písmena:

Text: С е г о д н я н о ч ь ю н а с т у п л е н і е
Klíč: П р а г а п р п р а г а п р а г а п р а г а п
Šifra: а х г с д ы о т и р е ы я ч я ю т и р е ы р с х у я ъ е р и ф

Tento poslední řádek nalezených písmen telegrafujeme místo telegramu.

2. Služební poznámky blanků i adressy telegrafují se obyčejným způsobem.

3. V šifrovaném telegramu všechna rozdělovací znaménka zůstávají na svém místě a telegrafují se slovy — na příkl. čárka, tečka, pomlčka, dvojtečka.

4. Mezi slovy děláme pomlčku (také slovy).

5. Luštění telepramů provádí se podobně. Pod každé písmenko šifrov. textu píše se tentýž klíč:

а х г с д ы о т и р е ы я ч я ю т и р е ы р с х у я ъ е р и ф
п р а г а п р п р а г а п р а г а п р а г а п
с е г о д н я н о ч ь ю н а с т у п л е н і е

potom v 1. kolmém sloupci hledáme písmeno „n" — a na témže vodorovném řádku písmeno „a". Pak jdeme nahoru. Písmena „c" horního řádku je písmenem skutečného textu telegramu.

6. Tak můžeme šifrovat telegramy české i ruské.

7. Je nutno dohlížeti přísně na telegrafisty, aby telegrafovali a přijímali přesně — a aby čitelně psali.

8. Na počátku telegramu po adresse, která nesmí nikdy býti šifrována, píše se v ž d y klíč tímto způsobem: „Telegramma Komkora 034". Potom nutno udati — odkud a kdy se telegram posílá. (Krásnojarsk 24. června 14 hod. 25 minut).

9. Je li telegram odpovědí na jiný telegram nebo nějakou listinu, to hned za minutami se píše: „Na č. 53" a pod.

10. Na konci telegramu píše se svoje běžné číslo.

Příklad:

Челябинскъ Штакору чехослов. Телеграмма Комкора 034. Красноярскъ 24 іюня 14 час. 25 мин. На № 276-он. (Текстъ телеграмми.) № 148. Комендантъ станціи поручикъ П л а ч е к ъ.

Инструкціи для зашифрованія и дешифрованія телеграммъ.

1. Для зашифрованія телеграммы сперва пишутъ ея текстъ отдѣляя букву отъ буквы. Подъ каждою буквой текста — въ каждомъ словѣ отдѣльно — подписывается ключъ, повторяющійся въ одномъ и томъ же порядкѣ до конца слова. Потомъ ищутъ въ первой горизонтальной строкѣ таблицы сперва передаваемую букву „с" (см. примѣръ) а въ вертикальномъ столбцѣ букву ключа „п". На пересѣченіи обоихъ столбцовъ будетъ „а". Такъ же отыскиваютъ и другія буквы.

Эту послѣднюю строчку найденныхъ буквъ и передаютъ вмѣсто текста телеграммы.

2. Служебныя обозначенія бланковъ и адреса передаются обикновеннымъ образомъ.

3. При шифрованіи всѣ знаки препинанія оставляютъ на своихъ мѣстахъ и передаютъ обыкновеннымъ образомъ, прописывая ихъ — на примѣръ: запятая, точка, тире, двоеточіе.

4. Между словами надо вставлять тире (тоже прописью).

5. Дешифрованіе производятъ подписывая подъ каждой буквой шифра букву того же ключа:

а х г с д ы о т и р е ы я ч я ю т и р е ы р с х у я ъ е р и ф
п р а г а п р п р а г а п р а г а п р а г а п
с е г о д н я н о ч ь ю н а с т у п л е н і е

потомъ въ 1. вертикальномъ столбцѣ ищутъ букву „а". Потомъ поднимаются вверхъ. Буква верхней строчки „с" и есть буквой настоящаго текста телеграммы.

6. Такимъ образомъ можно телеграммы передавать по чески и по русски.

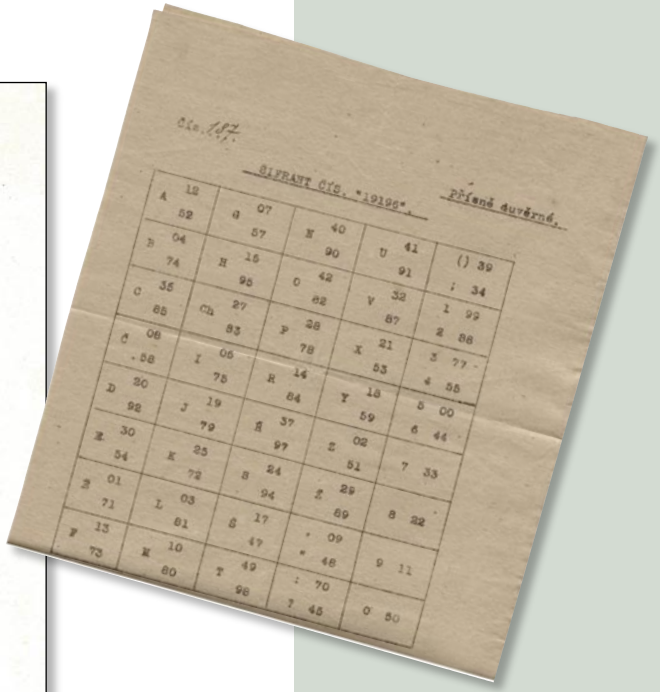
7. За телеграфистами слѣдуетъ имѣть строгій надзоръ, что-бы они передавали и принимали точно — и отчетливо писали.

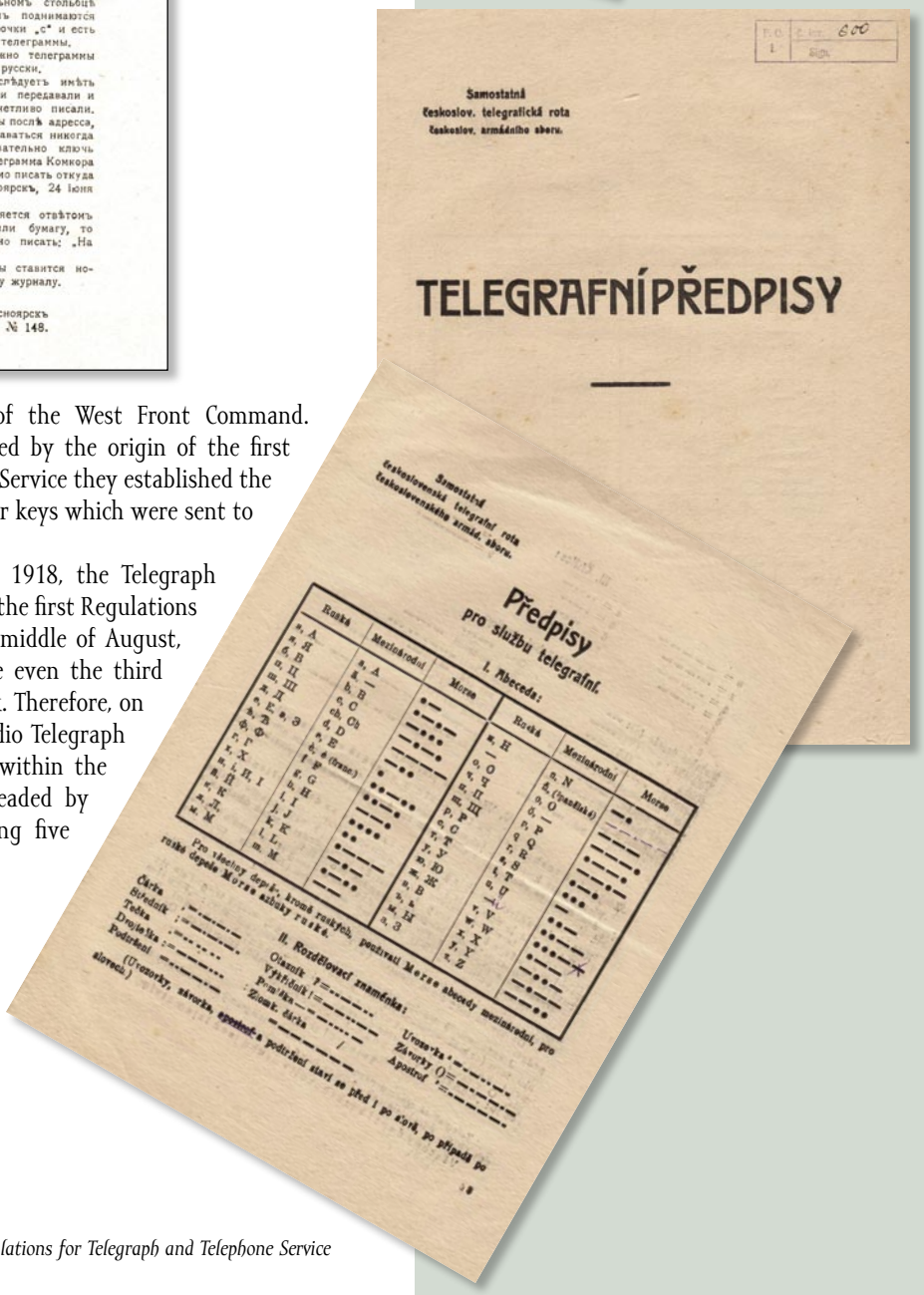
8. Въ началѣ телеграммы послѣ адресса, который не долженъ передаваться никогда шифрами, пишется обязательно ключъ слѣдующимъ образомъ: Телеграмма Комкора 034. Послѣ этого необходимо писать откуда и когда посылается (Красноярскъ, 24 іюня 14 часовъ 25 минутъ).

9. Если телеграмма является отвѣтомъ на другую телеграмму или бумагу, то вслѣдъ за минутами нужно писать: „На № 53" и п.

10. Въ концѣ телеграммы ставится номеръ по своему исходящему журналу.

Примѣръ:





WO Zahálka became Chief of Signal Service of the West Front Command. Improvement of communication was accompanied by the origin of the first cipher. Under the command of the Chief of Signal Service they established the first Code Office preparing better and better cipher keys which were sent to all the units of the Czechoslovak troops.

In the meantime, at the beginning of August 1918, the Telegraph Company, still based in Nikolsk Ussuriyski, issued the first Regulations for the Telegraph and Telephone Service. In the middle of August, it moved to Kharbin. They succeeded to acquire even the third field radio station from the British in Vladivostok. Therefore, on September 2, 1918, they were able to form a Radio Telegraph Section consisting of three field radio stations within the Telegraph Company. The Telegraph Company, headed by Junior Captain Svozil, consisted of the following five sections:

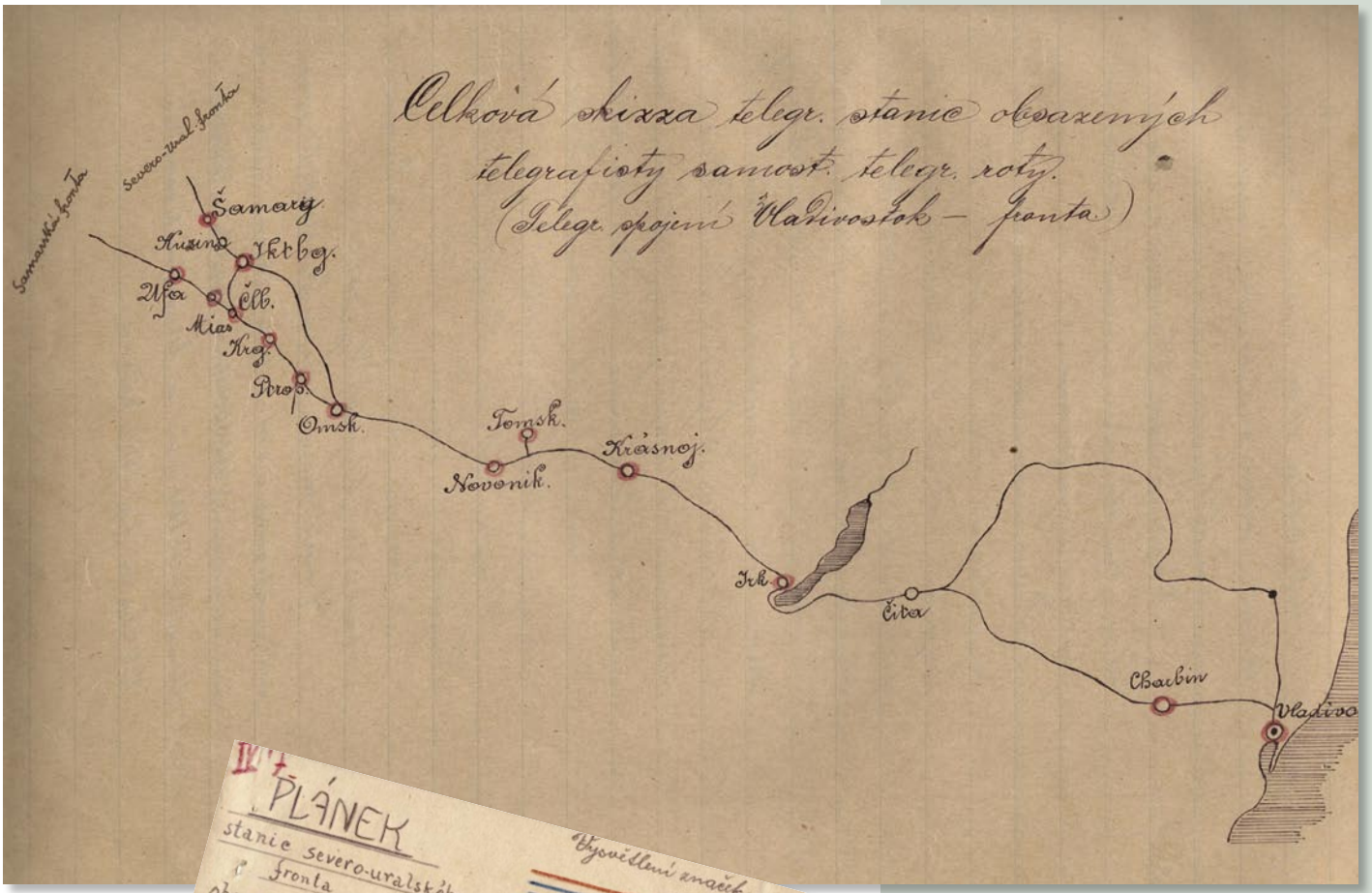
- Cable Section I – Commander: WO Jaroslav Jirkovský, 48 men;
- Cable Section II – Commander: Lieutenant Eduard Suchánek, 45 men;
- Supreme Command Section I – Commander: WO František Elias, 46 men;
- Supreme Command Section II– Commander: 2nd Lieutenant Jaroslav Čížek, 44 men;
- Radio Telegraph Section I – Commander: marksman Tomáš Píštělka, 29 men.

The first printed Regulations for Telegraph and Telephone Service

Line installation in Telegraph School

French flare pistol, Model 1917

In October 1918, the Telegraph Company moved via Irkutsk, Krasnoyarsk and Omsk to Yekaterinburg. With regard to long-lasting disease, Junior Captain Svozil abdicated the command of Telegraph Company and Lieutenant Suchánek replaced him in the position. On October 30, 1918, the Telegraph Company arrived finally at the Czechoslovak Army Corps Headquarters in Chelyabinsk. Trained telegraphers of the Signal unit were attached to Telegraph Company and thus the unit got clear of a large piece of work and responsibility. Since October 30, 1918, the Company used official name - Czechoslovak Telegraph Company. On November 1, 1918, the Company was attached to the system of military formations of the Czechoslovak Army Corps Headquarters. Within three months it started operation of many telegraph stations along the Trans-Siberian Railway. Only in November, it was 18 stations, while each of them was usually operated by three to four telegraphers. In November 1918, they established a School for Radio Telegraphers at the Radio Telegraph Section. It trained 27 graduates in its first one-month-long course. At the beginning of November when the strength of the Telegraph Company consisted of 7 officers and 202 men, they opened School of Telegraph Service. On this occasion, on November 11, 1918, the Company Commander addressed the members of the Company as follows: *"With regard to opening of the School of Telegraph Service and highly urgent need of skilled telegraphers, I ask all the brothers who attended the first course of Telegraph School and moreover, all the other men who were listed as linesmen till now, to actively participate in theoretical lessons as well as in practical training. The brothers who do not show their interest and maximum effort in learning the necessary knowledge, cannot serve in the unit providing so highly responsible service as the telegraphy is. Brothers, be good support – not a trouble for our nation"*. The fact that the conditions in Siberia were very miserable is proved by the following article from the Order of Telegraph Company No. 186, dated November 27, 1918: *"Regarding the fact that the existing frost makes the pieces of apparatus in the Telegraph School freezing, I order the company duty sergeant and his assistant to keep up the fire in the Telegraph School all the night"*. These were the



Telegraph station between Vladivostok and front

Diagram of communication on Northern Ural front

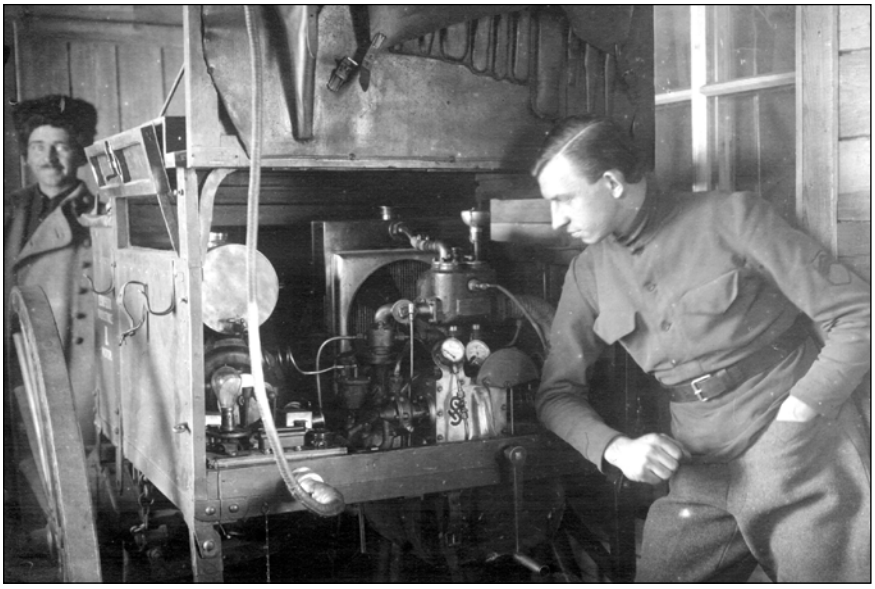
Czechoslovak Radio Station II in Yekaterinburg

Radio operator of Czechoslovak Radio Station II

conditions in which the Czechoslovak soldiers in the middle of Siberia could hear about the origin of Czechoslovak Republic in November 1918.

On December 31, 1918, the Radio Telegraph Section reached the strength of 137 men. That time, the 1st Czechoslovak Radio Station was based in Cheliabinsk and the 2nd Czechoslovak Radio Station was in Yekaterinburg. The two stations were used namely for monitoring (spying), i.e. receiving. This character was dictated by the immense area of the territory where the Czechoslovak troops operated and by insufficient number and power of the radio stations. Some Czechoslovak regiments and divisions also disposed of the radio stations which were often used for mutual communication. Based on the Order of the Czechoslovak Troops in Russia No. 10, dated February 1, 1919, the Radio Telegraph Section was reorganized to Czechoslovak Radio Telegraph Company (sometime, they used the name 1st Detached Radio Telegraph Company).

After arrival of the Telegraph Company to the Czechoslovak Army Corps in Cheliabinsk, the shape of Signal Service had definitely crystallized. Since September 1918, the Army Corps was headed by Maj. General Jan Syrový. The closest body of the Commander's assistance was the Headquarters divided to seven departments. Department I was headed by Quartermaster-General Lt. Colonel Vojtěch Vladimír Klecanda who concentrated operational, intelligence and secret intelligence agenda. Beside other things, his subordinated components included Signal Service, i.e. telephone, telegraph and radiotelegraph service headed by the Chief of Signal Service. He was responsible for the Headquarters Signal unit, Telegraph Company



Motorized barrow of Siemens&Halske 1910 radio station of Czechoslovak Radio Station II

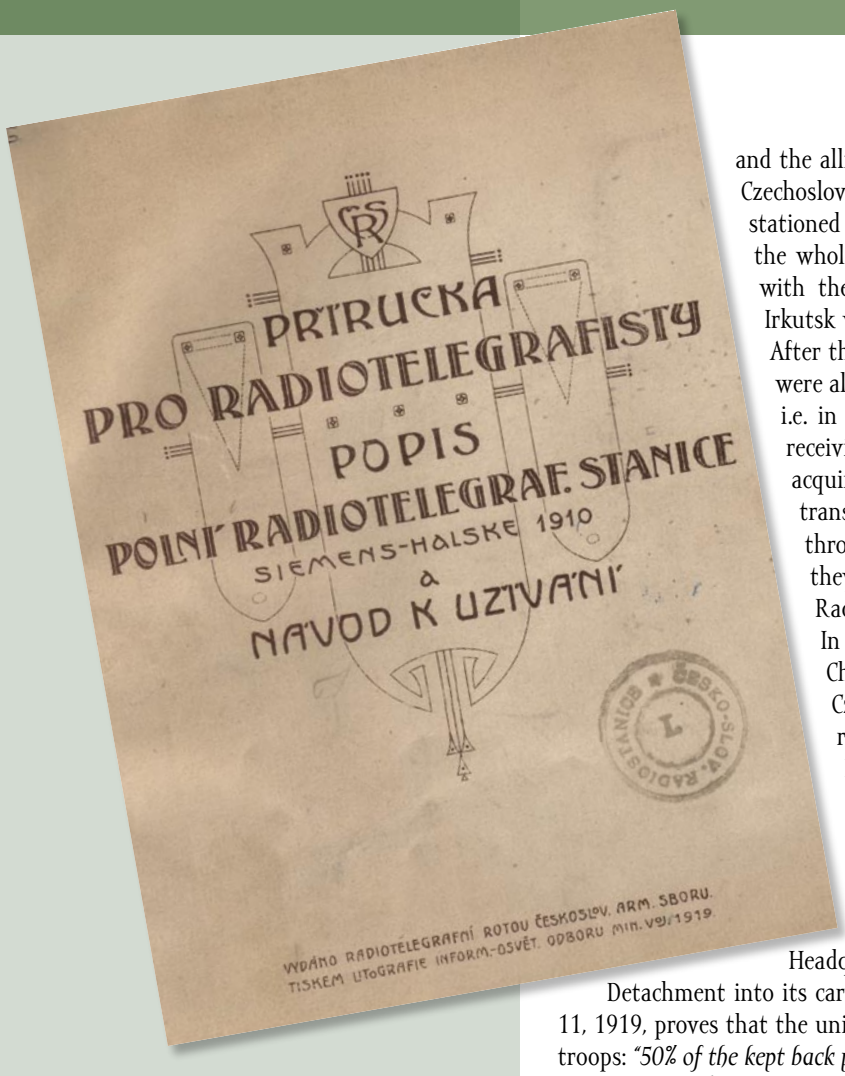
(since February 1919, Radio Telegraph Company), Code Office and the chiefs of signal service of individual divisions. The Telegraph Company provided telegraphic communication between the Headquarters of Czechoslovak Troops, corresponding-level institutions, headquarters of individual divisions and, moreover, telegraph communication in deep rear area. It was also responsible for installation and maintenance of telegraph links between the mentioned institutions and formations of the Czechoslovak troops. Telegraph and Telephone units of individual divisions provided the telephonic and telegraphic communication within their divisions. The Headquarters Signal unit provided namely internal communication of the HQ.

Activity of the Telegraph Company which trained the telegraphers for the entire Army Corps was constantly growing. Only during February 1919, it sent 11,162 messages and received 11,182 messages. But the situation of the Corps, tired by continuous combat tension and being under the pressure of the newly formed and strengthened Soviet units, became untenable already. Moreover, origin of the independent Czechoslovak state in October 1918 met the principal ideal which led our soldiers to combat actions all the time. They considered their mission accomplished and strived for the quickest possible return to their homeland. Since January 1919, the Regiments I, II and in January, even Regiments III of the newly formed Czechoslovak Rifle Division gradually withdrew from the front. In the second half of January, Czechoslovak units handed over the Western Front to Russian Army and were withdrawn to rear area with the task to guard the Trans-Siberian Railway. On February 1919, the existing name of Czechoslovak Army Corps was cancelled and all the Czechoslovak units on the territory of Russia were officially called Czechoslovak Troops in Russia as a part of the troops of Czechoslovak Republic. Maj. General Syrový remained commander of the troops. French General Maurice Janin became Commander-in-Chief of the Czechoslovak Troops

Radio Station of the Czechoslovak Rifle Division III Headquarters

Telegraph of Czechoslovak Troops Headquarters

Headquarters Telephone Exchange

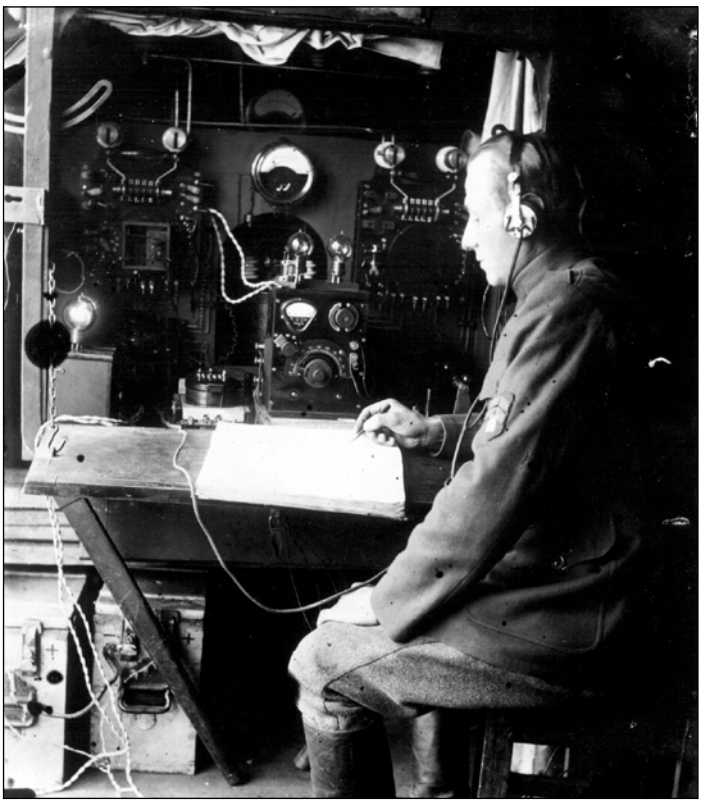


and the allied units. Irkutsk became new seat of the Headquarters of Czechoslovak Troops in Russia, The Signal unit which was originally stationed in two railway carriages (teplushka) enlarged and occupied the whole the detached signal train and left Cheliabinsk together with the Headquarters. Telegraph station of the Signal unit in Irkutsk was situated directly in the Headquarters building.

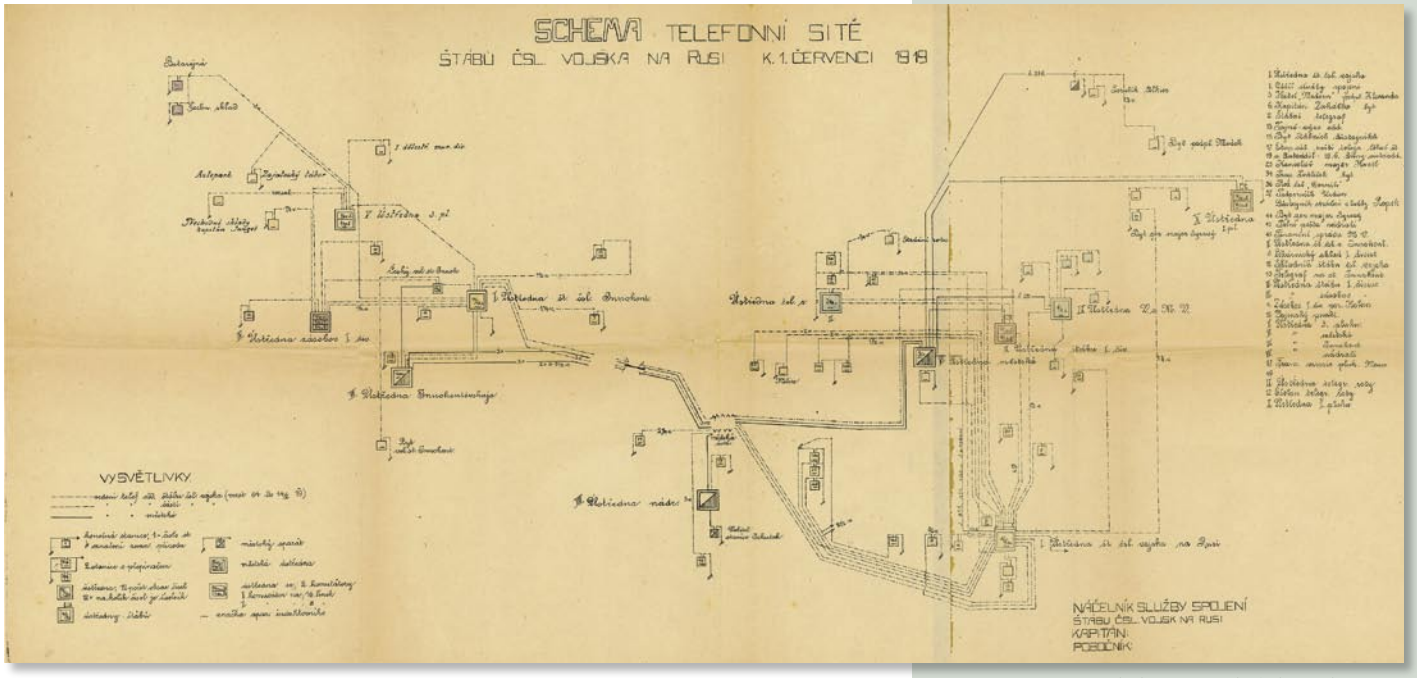
After the departure of troops to the Trans-Siberian Railway, there were already four Czechoslovak radio stations operating in Siberia i.e. in Novonikolayevsk, Krasnoyarsk, Irkutsk and Omsk ("small" receiving radio station at the French station). Thanks to the acquired amplifiers, the stations were able not only to receive the transmission from Paris, Lyon, Roma and other cities but also, through the radio stations in Constantinople and Archangelsk, they maintained communication with Prague. The strength of Radio Telegraph Company reached 130 men.

In the middle of March 1919, the Telegraph Company left Chelyabinsk and moved to the seat of Headquarters of the Czechoslovak Troops in Irkutsk. During March, the company received 16,845 and sent 15,230 telegraphic messages. It operated 24 telegraph stations by 88 telegraphers. Telegraph courses continued even in the unfavourable situation. On May 20, 1919, the Telegraph School opened the 5th Telegraph Course and as late as October 13, it opened the last, 7th Telegraph Course. On June 23, 1919, the Telegraph Company took over the telegraph of the Headquarters of Czechoslovak Troops in Russia from the Signal Detachment into its care. An article of the Company Order No. 223, dated August 11, 1919, proves that the units were threatened not only by the approaching Bolshevik troops: *"50% of the kept back pay of the venereal disease patients will be used as an income of the hospital (or medical infirmary) and used for the purchase of the goods necessary to improve the nutrition and treatment of venereal diseases patients. The other 50% will be given to the venereal diseases patients."*

Russian flare pistol made by reconstruction of Smith & Wesson revolver



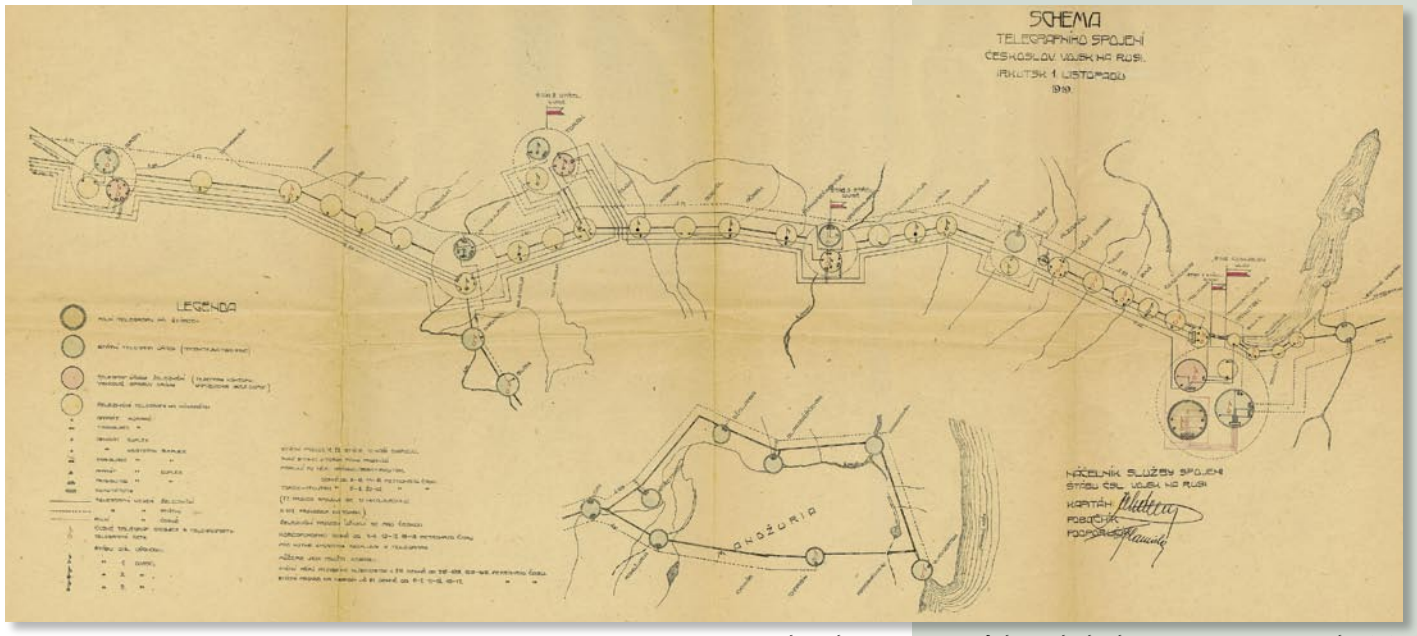
Siemens&Halske 1910 radio station in Krasnoyarsk



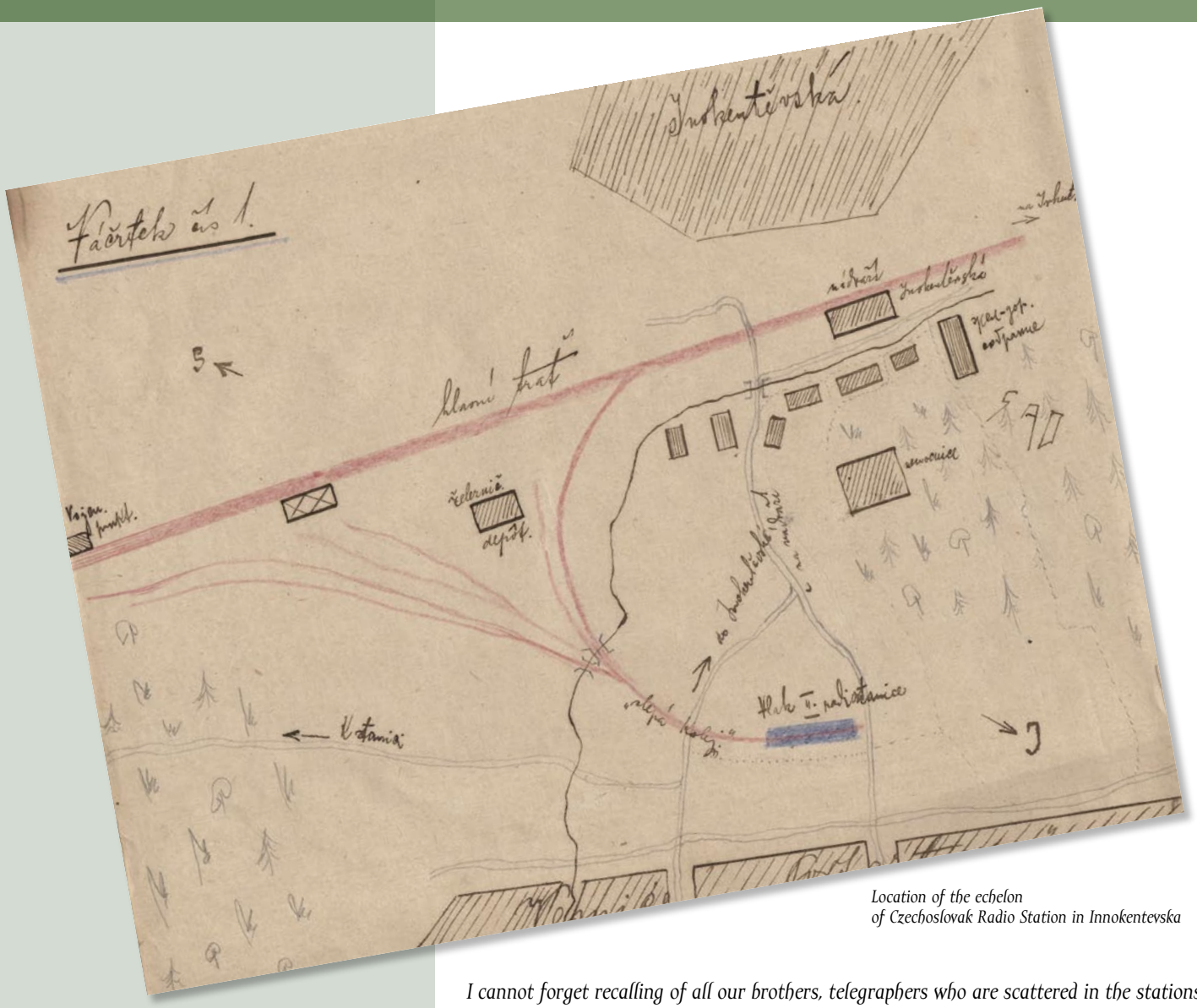
Telephone network of the Headquarters of Czechoslovak Troops in Russia in July 1919

In August 1919, they established an Evacuation Office of the Czechoslovak Troops in Russia which was responsible for the movement of all Czechoslovaks to their homeland. The first transport with disabled soldiers, old men and patients cleared the Vladivostok harbour in January 1919 already. The first echelons left Irkutsk for Vladivostok at the beginning of October 1919. In November 1919, the whole front began to collapse. On November 8, Czechoslovak units left Omsk and the echelons began to concentrate in the section of Krasnoyarsk – Irkutsk. Since the beginning of December 1919, the military-troops ships departed from Vladivostok.

Even as late as in October 1919, 110 telegraphers of Telegraph Company, using 26 telegraph stations, received 11,425 and dispatched 11,196 messages. However, the end of operation of the Telegraph Company was approaching. On December 24, 1919, Commander of the Company expressed the following wishes to his soldiers: *"Brothers, on the eve of Christmas, when the memory and wishes creep into our hearts under the sacred impression of that day more than other times, I wish all of you pleasant spending of Christmas time and accomplishing of all our wishes. On this occasion,*



Telegraph communication of the Czechoslovak Troops in Russia in November 1919



Location of the echelon
of Czechoslovak Radio Station in Innokentevska

I cannot forget recalling of all our brothers, telegraphers who are scattered in the stations in the whole vast
Siberia and bound by their duties to the telegraph apparatus even this evening and cannot celebrate the Christmas Eve sitting together with us at the table."

Erection of antenna
of the Czechoslovak Radio Station III in Innokentevska

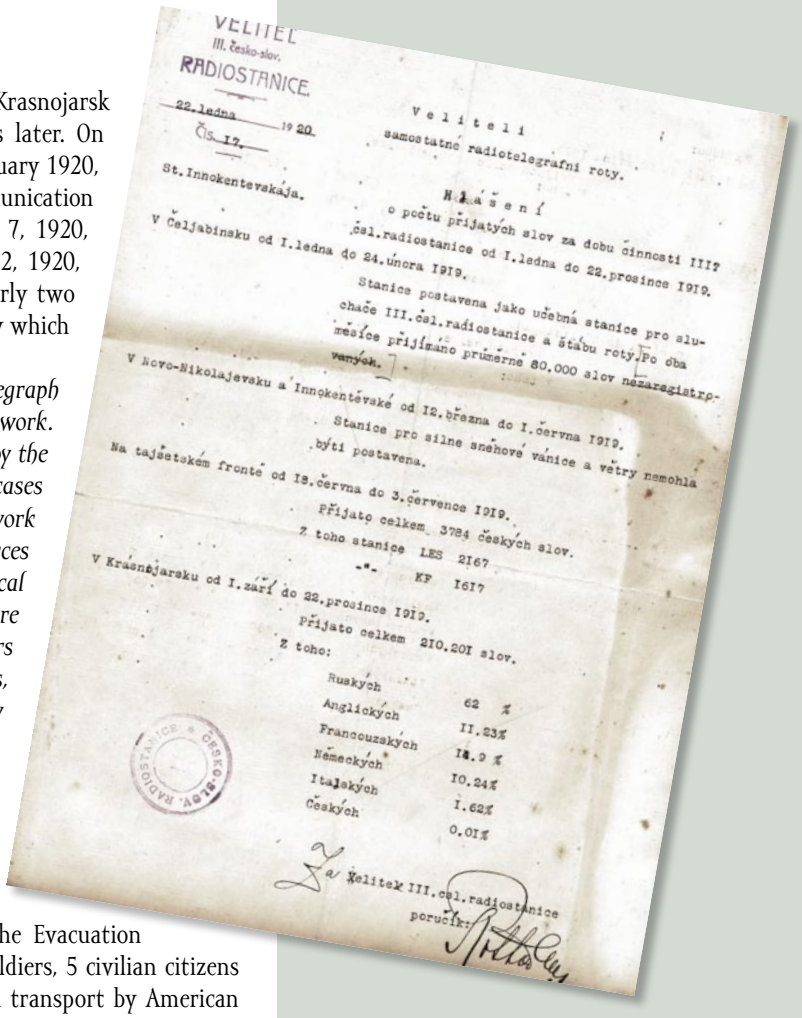
Czechoslovak Radio Station III in Innokentevska

On January 4, 1920, the last Czechoslovak transports left Krasnojarsk which was occupied by the units of Soviet Russia four days later. On March 1, 1920, they left Irkutsk as well. Since the middle of January 1920, the Telegraph Company provided namely the telegraphic communication of the troops moving to the east from Irkutsk. On February 7, 1920, the echelon of Telegraph Company left Irkutsk and, on April 2, 1920, it terminated its tour across Siberia in Vladivostok. After nearly two years, members of the Telegraph Company came back to the city which represented a gate to their return to homeland that time.

Company Order No. 147, dated May 26, 1920 stated: *"Telegraph Company has accomplished its many years´ standing telegraphic work. It may be proud of the results as it is proved by the recognition by the Commander of Czechoslovak Troops Gen. Syrový and many other cases of recognitions by other commanders. Its silent and tireless work frequently and substantially helped all our troops and allied forces and detachments under our supreme command in the most critical situations. This work can be appreciated only by those who were working on responsible posts. Therefore, I praise all the commanders of detachments and their assistants, all the inspectors, telegraphers, technicians and linesman patrols for their responsible and highly demanding work and I order the recognition be recorded in their personal service documents."*

On the turn of April and May, 1920, the last places of operation of the Czechoslovak Radio Stations were as follows: Pogranichnaya (Radio Station I), Nikolsk Ussurskij (Radio Station II) and První Říčka (The first creek) in Vladivostok (Radio Station III). In accordance with the dispositions of the Evacuation Office, the Telegraph Company, consisting of 10 officers, 136 soldiers, 5 civilian citizens and 4 members of foreign countries, was included in the 30th transport by American ship EDELYN. It left Vladivostok together with Radio Telegraph Company on May 29, 1920. On September 1, 1920, the Telegraph Company terminated its wandering in Mladá Boleslav where it joined the 1st Czechoslovak Telegraph Regiment together with Radio Telegraph Company.

The Czechoslovak Legions in Russia consisted of about 61,000 men; out of them, 4,100 soldiers fell in the battle. The ships from Vladivostok were sailing to Europe till September 1920. They brought more than 72,000 persons home.


VELITEL
III. česko-slov.
RADIOSTANICE.

22. ledna 1920
Čís. 12.

Velitelí
samostatné radiotelegrafní roty.

St. Innokentevskája.

Hlášení
o počtu přijatých slov za dobu činnosti III?
čsl.radiostanice od I.ledna do 22.prosince 1919.

V Čeljabinsku od I.ledna do 24.února 1919.
Stanice postavena jako učebná stanice pro slu-
chače III.čsl.radiostanice a štábu roty.Po dva
měsíce přijímáno průměrně 80.000 slov nezaregistrp-
vaných.

V Novo-Nikolajevsku a Innokentévské od 12.března do I.června 1919.
Stanice pro silné sněhové vánice a větry nemohla
býti postavena.

Na tajšetském frontě od 13.června do 3.července 1919.
Přijato celkem 3784 českých slov.
Z toho stanice LES 2167
-"- KF 1617

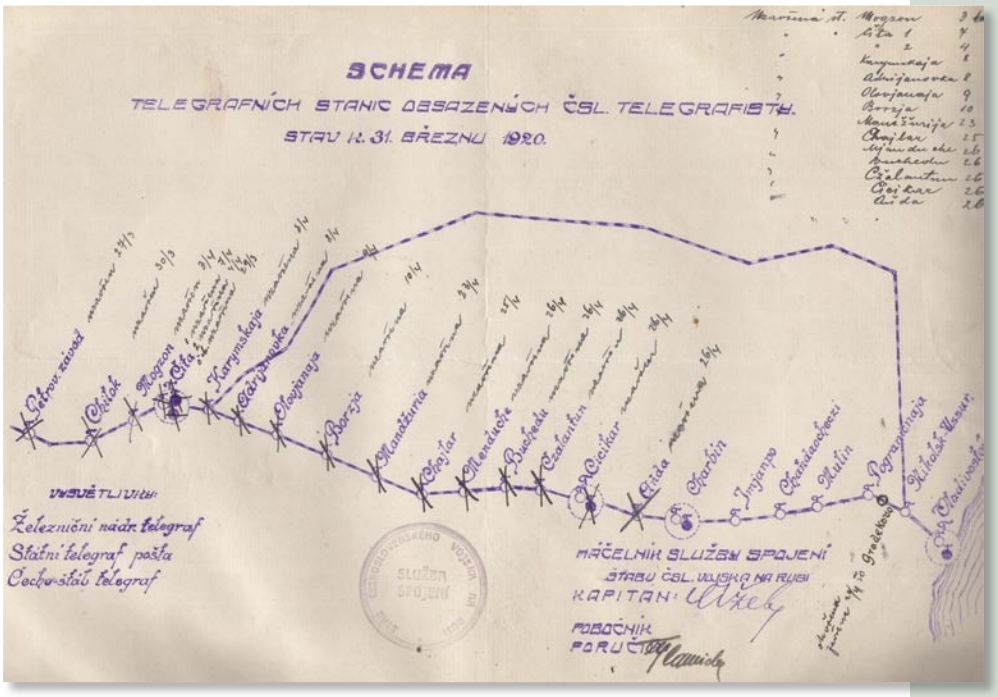
V Krasnojarsku od I.září do 22.prosince 1919.
Přijato celkem 210.201 slov.
Z toho:

Ruských	62 %
Anglických	11.23%
Francouzských	14.9 %
Německých	10.24%
Italských	1.62%
Českých	0.01%

Za Velitele III.čsl.radiostanice
poručík:


1129

Italian flare pistol, Model 1900



Gradual departing from the telegraph stations on the Trans Siberian Link

COMMUNICATION EQUIPMENT IN THE COURSE OF WORLD WAR I

The use of communication equipment experienced immense development in the course of the World War I. All the accessible means of communication, beginning from the most primitive up to those the use of which was enabled by the latest knowledge of science, were gradually upgraded.

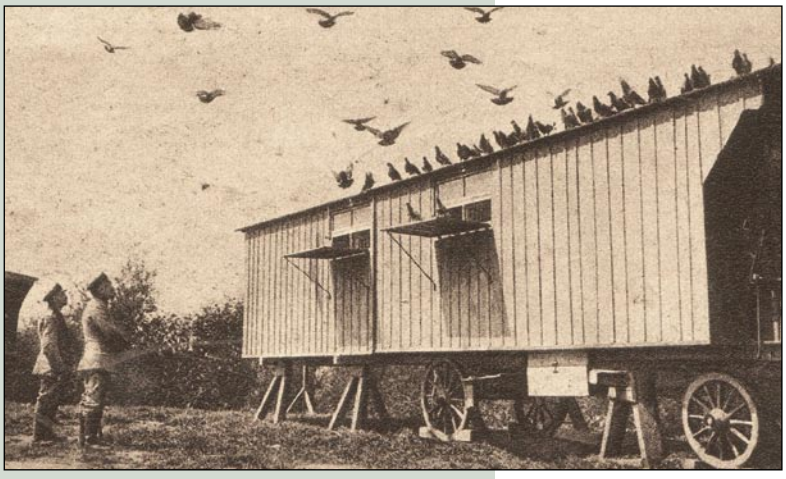
The oldest used way of conveying a message was its direct handing over by messenger. This way was often used also in the years of World War I. However, depending on the nature of the terrain, the traditional runners were replaced by dispatch riders, bicycle /motorcycle or automobile couriers (tourers). However, this way of conveying the messages did not exceed 60 km/h even at the most favourable conditions.

Courier of Czechoslovak Legions in Russia

Most often used way of communication of the attacking infantry with friendly trenches was launching of messages. The messages were placed in a special cartridge which was loaded into a rifle grenade launcher and fired under certain elevation degree to the message destination. At about half of its trajectory, the cartridge began to smoke and thus it gave notice that there is a message and, at the same time, it enabled easier location of its impact point. However, this way of conveying the messages could be used up to the distance of 300 m only.

Next, very long-time known way of conveying the messages was by using animals. Messenger pigeons became the most widespread link of communication. After being taken off from their home columbary and transported to the point of the message dispatch, they were able to return to the

Dogs were used to carry the messages



Mobile columbary of German Army

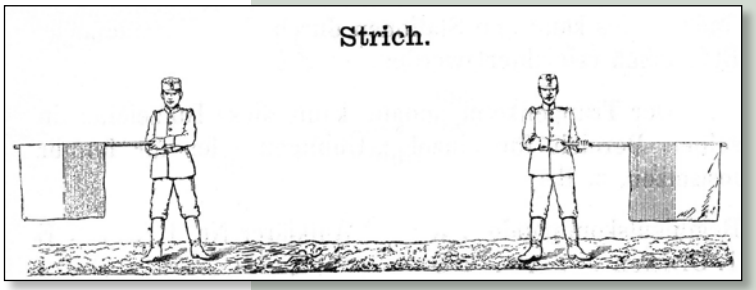
Special gas-proof columbaries

A messenger pigeon released from a British tank

Messenger pigeons were released even from aircraft

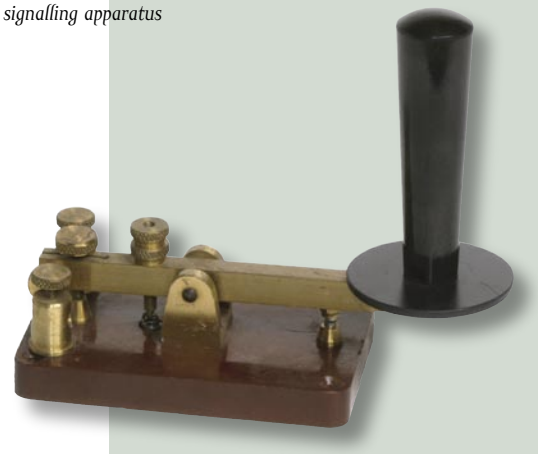
distance of 100 – 200 km without having a rest. Disadvantage of this way was that they had to wait 5 to 8 days after moving the home columbary to new place till the pigeons get used to it. Moreover, in case of the animals, it was always only one-sided link only. For example, in the battle by Verdun, the pigeons were the only link by means of which the surrounding fortresses, being under enemy's fire, could communicate with the Verdun garrison force. Dogs were also used to convey messages. Their faithful and cuddly behaviour towards his master as well as their speed and short figure were of good use.

Conveying of messages by semaphore signalling, by arms, by flags, by light or by acoustic signalling apparatus belongs to the oldest ways of communication. However, there were new but similar signalling means introduced in the years of World War I – the light flares. Meaning of the signal was given by both the colour and shape of the flare which could be fired from the flare pistol or from the rifle grenade launcher. Since the year 1915, signalling of a chemical attack was the most important.



Morse alphabet signalled by flags

German gas light signalling apparatus



German light signalling apparatus with pedal-driven aggregate

Austrian gas light signalling apparatus

German telephonists by Soma in the year 1916

German signalmen installing the lines in Vogéza in the year 1915

Higher-level commands often used the communication by means of Morse and Hughes telegraphs in the years of World War I. Their best advantage was the possibility of keeping the conveyed correspondence secret by using codes (moreover, that time technical means did not practically enable any monitoring (spying) of Hughes telegraphs even if their were connected to the link). On the other hand, comparing with telephony, the telegraphy was lengthy and less powerful.

It was just the telephony which solved the effort to convey human speech directly and to long distances. The Bell's invention enabled literally a revolution also in military conception of long-distance transmission of messages. It is the same as in case of telegraphy, that the best advantage of the telephone is the fact that it is two-sided communication means. Unlike the telegraphy, there is no need to have specially trained operator and the devices are evidently simpler. However, rather easy possibility of monitoring (spying) of the enemy conversation remains the worst disadvantage. It was stated after the war that the damages caused by monitoring (spying) of the telephone network from the side of the enemy were higher than its utility.

Bavarian soldiers operating a radio station

German field radiotelegraph station

All the armies, engaged in World War I, used wireless telegraphy based on the principle of electromagnetic waves propagation. Before the war, majority of these devices were installed aboard ships. It was estimated that there were about 4 to 5 thousand ship stations in the world.

Invention of three-electrode valve – triode, made by the American Lee de Forest before the war, enabled upgrading of the stations during the war. The research aimed at improvement of the triode for military purposes was carried out by French researcher General Ferrié. Thanks to that, they were able to construct a modern triode, which was used by all the fighting countries at the end of World War I. As early as in 1915, the French specialists designed a little transmitter for aircraft, which enabled literally a revolution in their use as observation means for artillery gun laying. At the beginning of the year 1917, French armed forces had already several thousands of small vacuum tube transmitters and receivers.

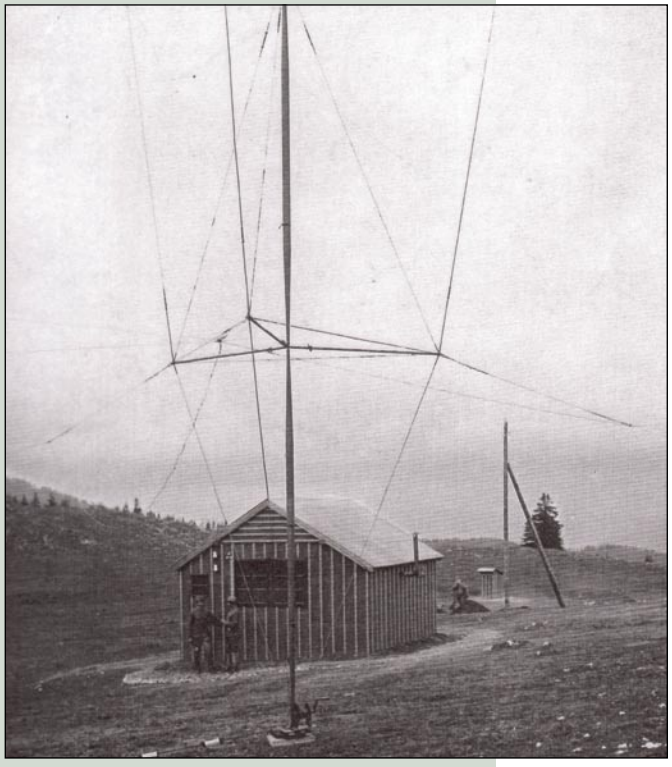
Rapid communication without great effort and its resistance against enemy fire remained the best advantage of the radiotelegraphy during the war. However,

3ter – French amplifier from the year 1917

Siemens & Halske AE 3.65 - Austrian earth telegraph receiver

the speed was considerably decreased by encryption, decryption and useless length of the messages during the war. On the other hand, the need of well-trained personnel and easy monitoring (spying) of the plain messages by the enemy appeared to be disadvantage. The Russian defeat by Tannenberg, at the turn of August and September 1914, clearly proved how dangerous the bad organisation and uncontrolled activity of radio telegraphic network can be. Some authors say that without using the radio telegraphy, the Russian operations would be much more successful.

Radio-telegraphic intelligence has been developed together with radio telegraphy. The Austrians belonged to the pioneers in the sphere of decoding the enemy radiograms since the year 1908 already. On September 19, 1914, they succeeded to decode the ciphers used by Russian Army. It enabled the Austrian and German troops to wage successful battles making use of the knowledge of the enemy's intentions in the extent unsuspected till then. In 1916, the Austrians introduced direction finding stations (Messstationen) that discovered the positions of the enemy's radio-telegraph stations and thus, they could locate exact position of higher or lower commands.



Austrian radio station on Italian front

Radio station of Czechoslovak Legions in Russia providing communication with Samara in October 1918

E10 bis – French radio station

The warring parties strived for improvement of the radio-telephony, i.e. wireless transmission of speech in the course of the whole war. However, it was used only exceptionally because of its much higher complicity than in the case of wireless telegraphy. An opposite case was the development of the earth telegraphy used namely by infantry on the front line for the communication with regiment commands. It was the same as in the case of wireless telegraphy; it made use of electromagnetic waves propagation but, in this case, the low-frequency waves were propagated by earth. The station did not require building of any antennas. However, this advantage was eliminated to some extent by a short range; about 2 km only. The stations were furnished with two wires, about 50 m long and diverging to sides. Their ends were provided by an anchor (a thick nail) attached to earth. Transmitter emitted the electromagnetic waves through the wires to the ground and the receiver received the waves again.

Teletypewriters represented quite new communication device developed in the years of World War I. Their designer Murray strived to remove everything having nothing to do with the transmission or reception of messages. Simplicity of operation was expected to be the main advantage here. Shortly before the end of the war, German Army used another, quite new discovery. It made use of facsimile telegraph of Vienna inventor Ludwig Tschörner to transmit the situation maps from the battlefields.

It is evident that the end of World War I did not stop the development of communication means. In the course of the next decade of the twentieth century, they experienced so high technical development which the designers at the beginning of the century could not even dream about.

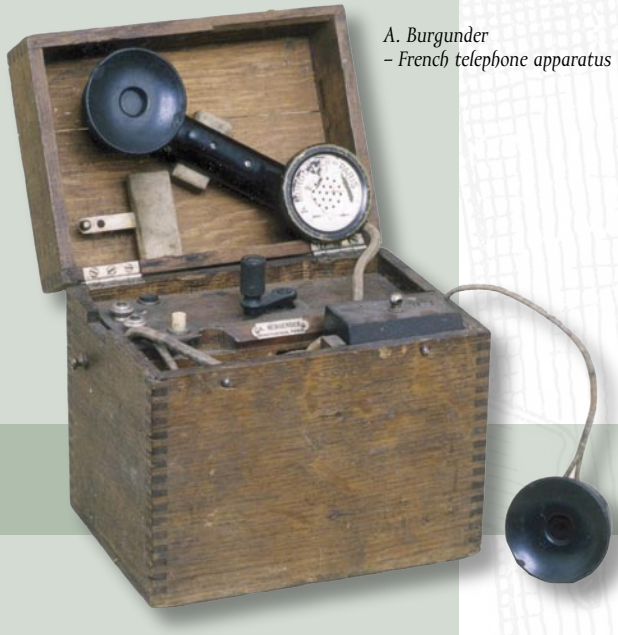
Austro-Hungarian flare pistol, Model 04

German double-barrelled submarine flare pistol

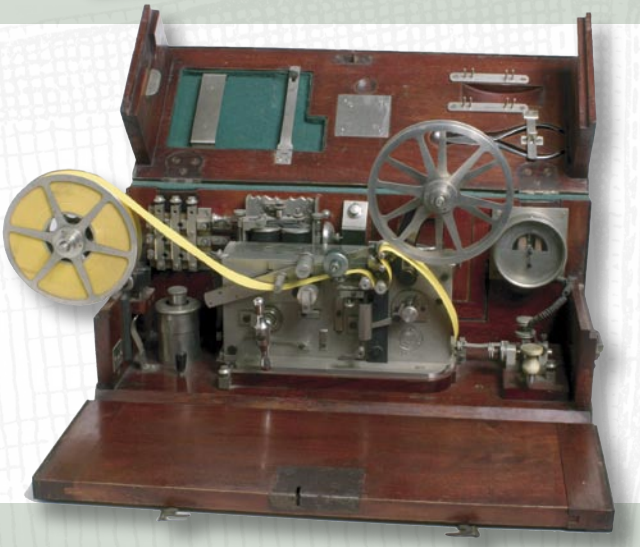
C 1918 – French telephone switchboard

Thomson Houston
– French telephone apparatus

A part of the Parleur No. 2
– French field telegraph



A. Burgunder
– French telephone apparatus

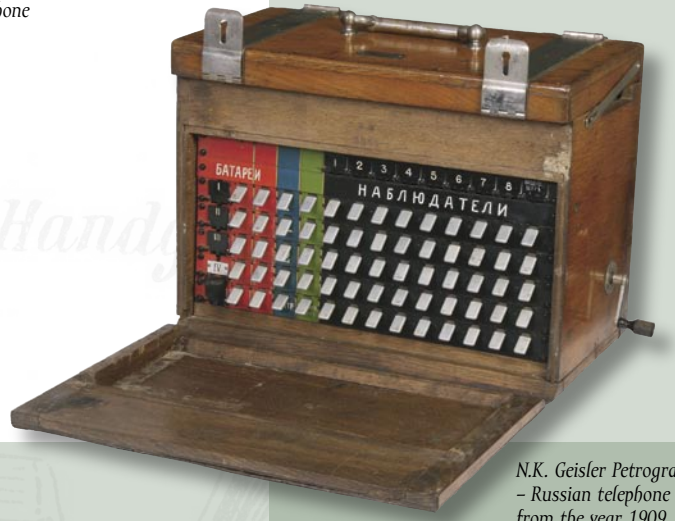


Western Electric Italiana – Italian field telegraph

Società Industrie
Telefoniche Italiane
– Italian telephone apparatus

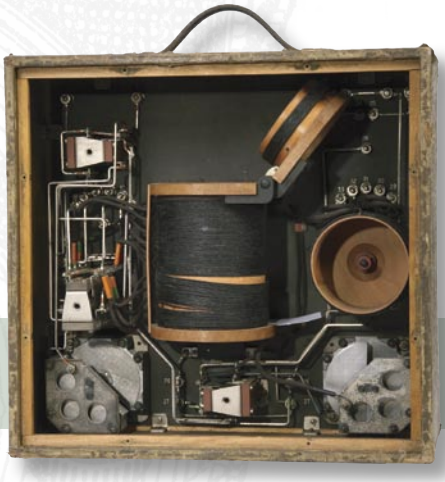
Model 16 Mix & Genest
– German telephone apparatus

Kapsch – Austrian telephone apparatus



N.K. Geisler Petrograd – Russian telephone switchboard from the year 1909

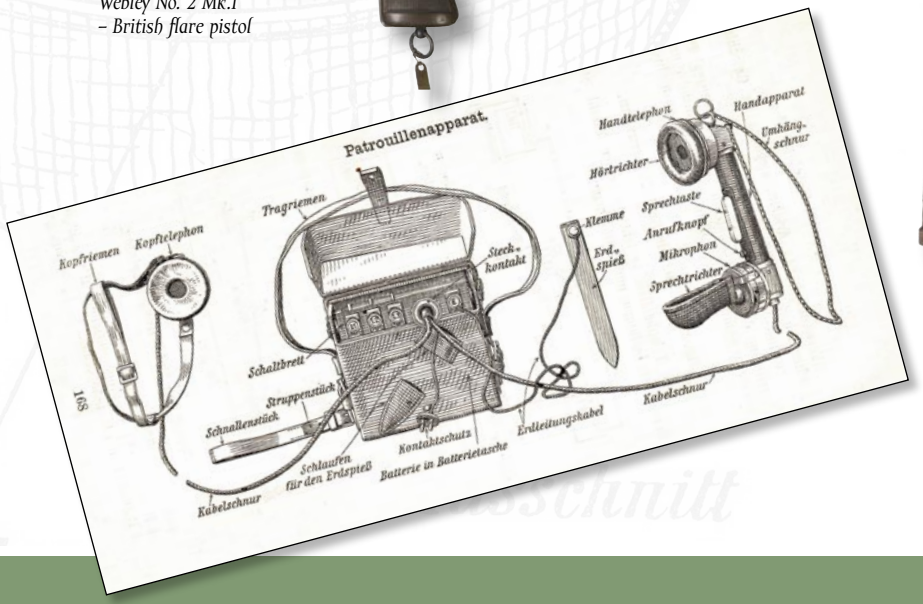
The telephone switchboard designed by the telephonist of Czechoslovak Legions in Russia Antonín Bouček in the year 1919



Siemens&Halske AE 3.65 – Austrian earth telegraph receiver

BC-14A – American radio receiver from the year 1918

Webley No. 2 Mk.I – British flare pistol

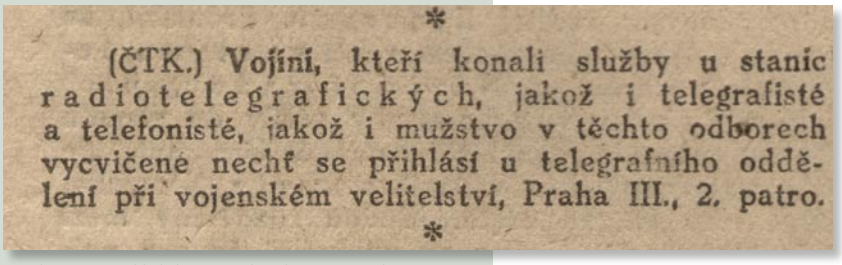


Ericsson Petrograd – Russian telephone receiver

DEVELOPMENT OF TELEGRAPH CORPS – THE YEARS 1918–1932

Experience from World War I clearly proved the importance of modern communication means. Command of the newly formed Czechoslovak Defence Force, which was official name of the armed forces, was aware of the importance of communication for waging the modern war since the beginning and it strived for the quickest possible development of Telegraph Corps. The Telegraph Corps played very important role since the first moment of the independent Czechoslovakia. On October 28, 1918, the Day of the Republic, there were neither legionaries fighting on the fronts of World War I nor the members of Sokol organisation and developing Czechoslovak troops but the Czech Postal Service personnel who enthusiastically accepted the call, offered their service to the new state and immediately provided communication between Prague and the rest of the Republic. On October 28, 1918, at 18.30 hours, the first deed of the Czechoslovak Post Office was the dispatching of telegraphic circular including the promulgation of the first Act of National Committee concerning establishment of independent Czechoslovak State to all national, district and municipal offices in Bohemia, Moravia and Silesia. Newly established Military Command in Prague started its operation by means of the telegram which was dispatched to the Station Commands all over the territory of Bohemia, Moravia and Silesia.

In these revolutionary days, upon the call of National Committee, several members of Austro-Hungarian Navy and Telegraph Regiment who stayed on leave in Prague also accepted the call. Those voluntaries formed a core of Telegraph Company, Prague, under the command of First Lieutenant Vojtěch Večeřa. It was stationed in the barracks at Újezd. On November 11, 1918, it started its operation consisting namely in taking over and provisional repairing of different kinds of communication material which the members of the company found in the barracks all over the Prague. One of its first steps was taking over of the Telephone Centre of Supreme Command of Czechoslovak Defence Force based in Prague and development of its telephone network. On November 15, 1918, the Company consisted of 250 officers and men already. Majority of them were to take part in occupation of Slovakia. On November 27, 1918, the first march company, counting 100 men, departed from Masaryk´s Railway Station for Slovakia. In November 1918, they established Central Telegraphic Depot in the barracks at Újezd. Second Lieutenant Brož became it first commander. At the beginning of December, the Telegraph Company succeeded to form a transport of 60 men equipped with the most necessary communication material which was sent to Slovakia. Shortly before Christmas, the Company started to develop the Telephone Exchange of Ministry of National Defence. At the same time, they open a Prague Garrison Telephone Course in order to solve the shortage of trained personnel as soon as possible.



(ČTK.) Vojíni, kteří konali služby u stanic radiotelegrafických, jakož i telegrafisté a telefonisté, jakož i mužstvo v těchto odborech vycvičené nechť se přihlásí u telegrafního oddělení při vojenském velitelství, Praha III., 2. patro.

Proclamation published in Národné listy on October 31, 1918

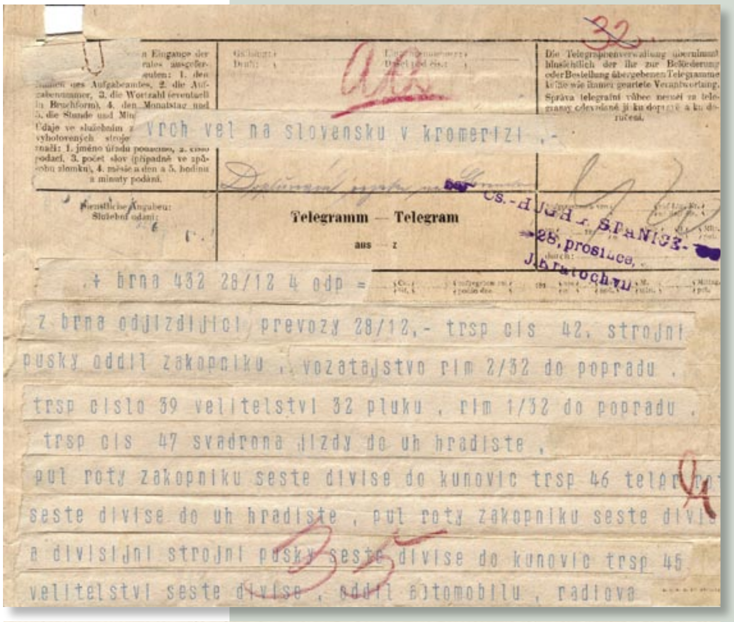
Barracks at Újezd – seat of Telegraph Company, Prague

Importance of communication for the newly formed state was underlined by the Act, dated November 13, 1918, which established special office (Ministry) of Post, Telegraph and Telephone Administration. It enabled development of telegraph and telephone networks according to needs of the new state. With regard to the absence of domestic producers of the communication means, the Ministry faced an acute shortage of material since the first days. Nearly entire electro-technical industry of former monarchy was concentrated in Vienna together with the branches of German Telefunken and Lorenz companies. Later on, the situation improved thanks to the purchase of Austrian, German and French surplus war stores and namely, thanks to formation of the Czechoslovak electro-technical industry.

The telegraph communication played essential role in the occupation of the Sudeten-German territory and namely Slovakia. The first hastily formed Czechoslovak units started the occupation of Slovakia at the beginning of November 1918. Regular, daily telegraphic reports provided the only communication between the advancing units and military command in Prague. Internal communication between the individual units fighting against Hungarian in Slovakia was provided namely by Cavalry at the beginning. The units suffered from absolute shortage of communication material of both the telephone apparatus and e.g. flare pistols. The first places occupied in each town were railway stations and post offices disposing of telegraphs and telephones which consequently enabled communication of the units with command.

In December 1918, Kroměříž became a seat of the Command of the Czechoslovak Troops in Slovakia and the Chief of Italian Military Mission in the Czechoslovak Republic Division General Luigi G. Piccione became its Commander-in-Chief. He stressed the importance of communication using the existing telegraph and telephone network in his first Order already. At the same time, he set a task to develop a radio telegraphic network. The captured material (e.g. 12 telephone apparatus were captured during occupation of Lučenec) played also very important role. On January 8, 1919, they established the Country's Military Command for Slovakia stationed in Košice. Captain Edmund Svatoň became commander of its Telegraph Department. On January 25, 1919, they dispatched a Telegraph Company for the Country's Military Command for Slovakia. The headquarters and one platoon consisted of the members of the Replacement Battalion in Josefov and the second platoon consisted of the members of Telegraph Company in Brno. Other soldiers followed. One of the hastily dispatched telegraph companies helped to suppress strike of railway employees in Slovakia, absolute majority of whom was of Hungarian nationality. Members of the company occupied telegraphs of the railway network and enabled restoration of the traffic which was of essential importance for successful occupation of Slovakia. Minister of National Defence Václav Klofáč personally thanked them by the following words: *"Within 24 hour you have dispatched the telegraph company to suppress railway strike in Slovakia. Being aware of the effort and energy needed to provide all the equipment, I appreciate very much your class-conscious understanding of the situation, dear brothers. Let the achieved respect of our brothers Slovaks and hate of our enemies be your best acknowledgment. Thank you sincerely for so active support and I wish you much success ..."*

The situation with the communication equipment markedly improved in the last December days with the arrival of the Czechoslovak Italian Legion Army Corps at Slovakia. After its arrival at Slovakia, the Army Corps disposed of Telegraph Section for the service to

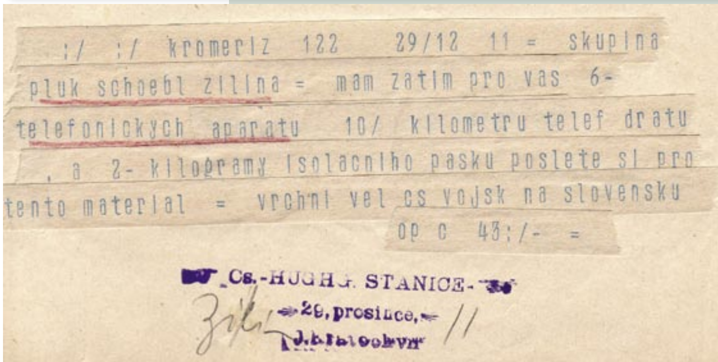


vrch vel na slovensku v kromerizi ,-

Telegramm — Telegram

+ brna 432 28/12 4 odp =

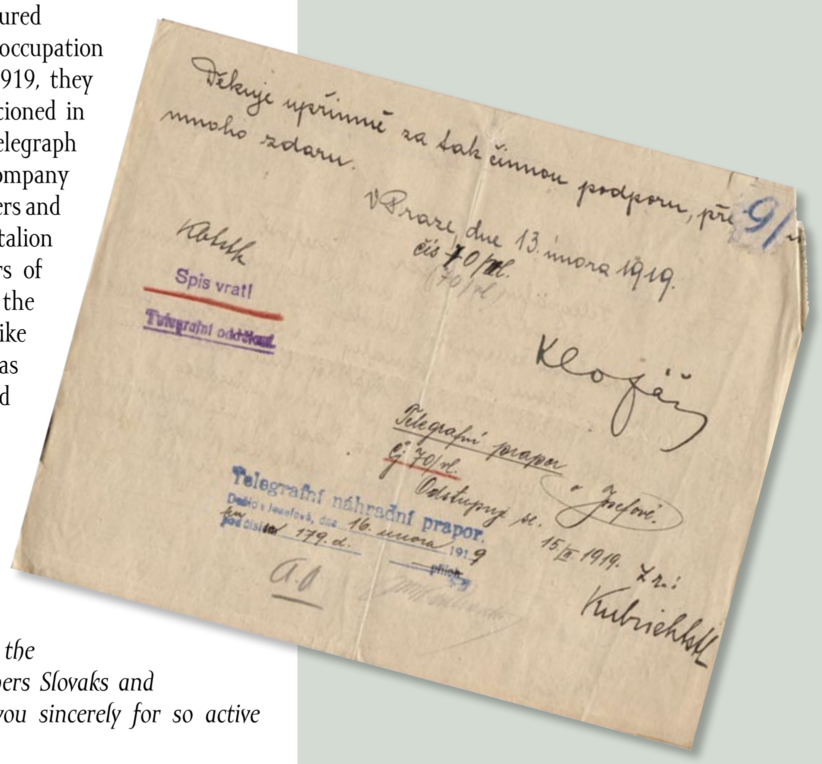
z brna odjizdjici prevozy 28/12,- trsp cis 42. strojni pusky oddil zakopniku , vozatajstvo rim 2/32 do popradu . trsp cislo 39 velitelstvi 32 pluku , rim 1/32 do popradu . trsp cis 47 svadrona jizdy do uh hradiste , pul roty zakopniku seste divise do kunovic trsp 46 telef... seste divise do uh hradiste , pul roty zakopniku seste divi... a divisijni strojni pusky seste divise do kunovic trsp 45 velitelstvi seste divise , oddil automobilu , radiova



:/ :/ kromeriz 122 29/12 11 = skupina pluk schoebl zilina = mam zatim pro vas 6- telefonickych aparatu 10/ kilometru telef dratu , a 2- kilogramy isolacniho pasku poslete si pro tento material = vrchni vel cs vojsk na slovensku

op c 43:/- =

Čs.-HUGH. STANICE- 29.prosince.



Děkuji upřimně za tak činnou podporu, přeji mnoho zdaru.

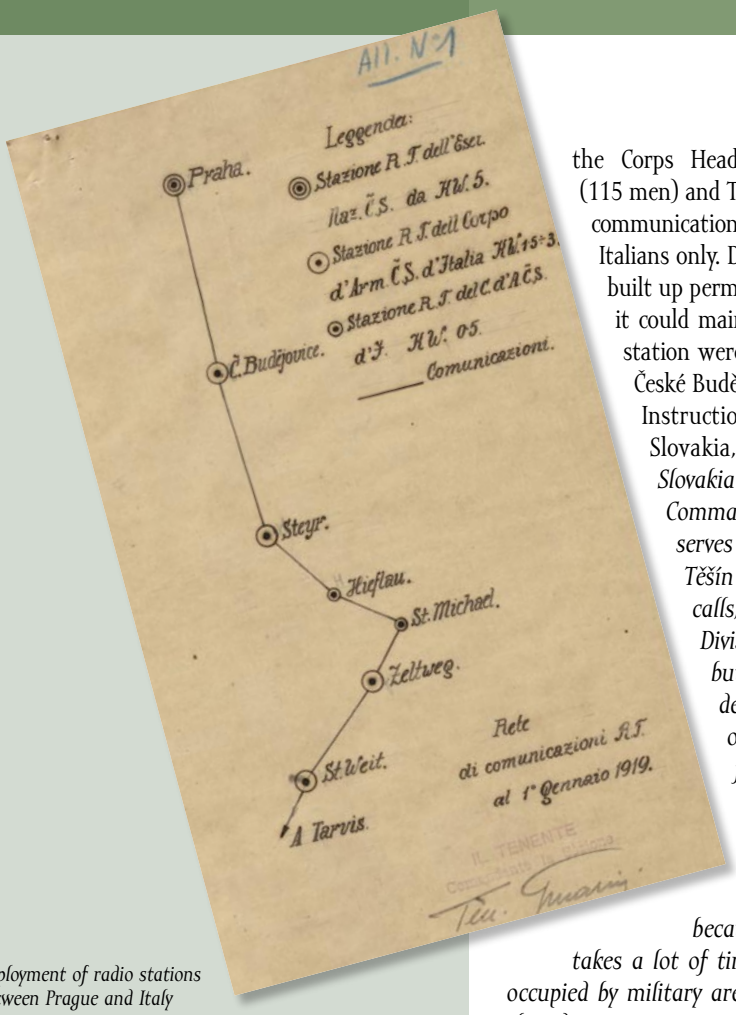
V Praze, dne 13. února 1919.

Klofáč

Spis vrať!

Telegrafní oddělení

Telegrafní náhradní prapor.



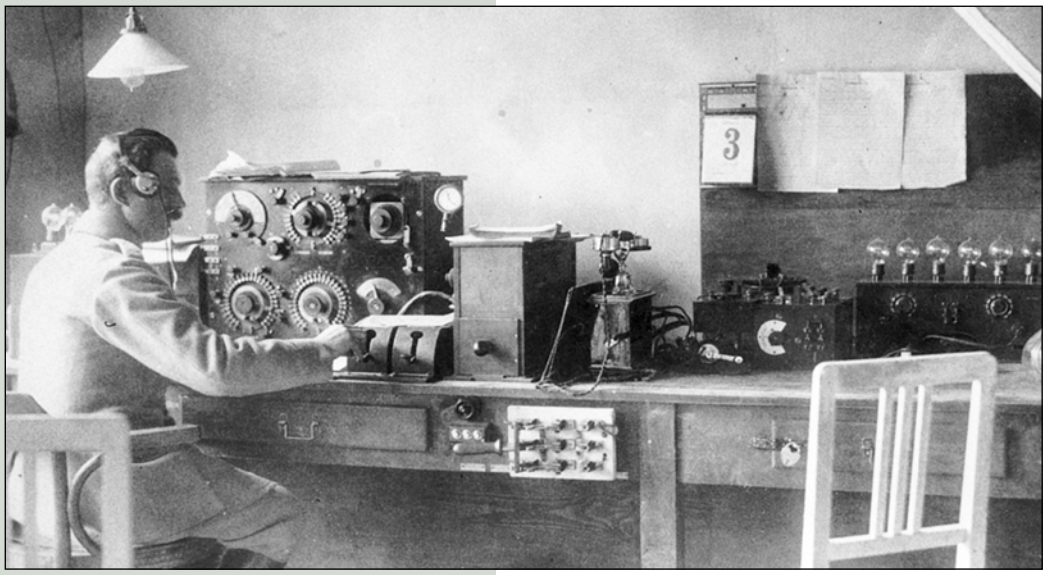
Deployment of radio stations between Prague and Italy

the Corps Headquarters (61 men) Telegraph Company of the 6th Division (115 men) and Telegraph Company of the 7th Division (115 men). Radiotelegraphic communication of the Corps was provided by Radio Section (40 men) consisting of Italians only. During the whole time of its movement from Italy, the Army Corps built up permanent stations of radiotelegraphic communication. Thanks to them it could maintain communication with Italian Travis and Prague. Italian radio station were gradually located in St. Weit, Zelweg, St. Michael, Hiefau, Steyer, České Budějovice, Kroměříž, Bratislava, Nitra and Košice.

Instructions concerning material provision of Czechoslovak Troops in Slovakia, dated January 1, 1919, said: *"... Maps of the telegraph network of Slovakia will be issued as soon as possible. Communication with the Main Command: Schöbl Group is connected by Hughes. The same communication serves for the 6th Division. Telephonic communication to Poprad goes via Těšín where the telegraph is in the hands of Poles who do not allow any calls; this time, the telephonic communication is impossible. The 7th Division is connected by telephone. Hughes communication is projected but it will be implemented only after MOND receive the Hughes devices from the liquidation in Vienna. Execution of all the works on permanent links belongs to Post Office directorates. Applications for new connections or new links should be requested via Staging Department. The requirements should be submitted in time because the processing work takes a lot of time. As soon as the links occupied by military are released during the advance, report it to the Staging Department which will organize their handing over to civil administration. Prospectively captured material should be reported to the Staging Department".*

Occupation of Slovakia was accomplished on January 20, 1919. Units of the Telegraph Corps in Slovakia were gradually replenished by the reinforcements from Bohemia and Italy. At the turn of February and March, the Command of the Technical

Italian telephone apparatus



The first radio station at Petřín

Department of the Czechoslovak Army Corps had the following subordinate units: 1st Telegraph Company of Czechoslovak Troops from Italy in Bratislava, headed by Second Lieutenant Hradil (formed from the Telegraph Section of the Corps); 6th Czechoslovak Telegraph Company in Košice, under the command of lieutenant Veleslav Buršík (formed from Telegraph Company of the 6th Division); 7th Czechoslovak Telegraph Company in Nitra, under the command of officer candidate Jan Petera (formed from

Telegraph Company of 7th Division) and two Italian units: 144th Telegraph Company in Bratislava, under the Command of Lieutenant Fausto Colombo and 55th Radiotelegraph Section in Bratislava, headed by Lieutenant Giuseppe Marini. The Radiotelegraph Section disposed of the above mentioned radio stations providing communication in Italy and the radio station at Petřín in Prague as well as two other portable radio stations and three radio vans. At the turn of April and May 1919, after repeated break of fighting in Slovakia, the telegraph communication enabled, beside other things, successful use of very limited artillery capacities at the most threatened parts of the front. The fighting in Slovakia ended in August 1919.

Cable network installation

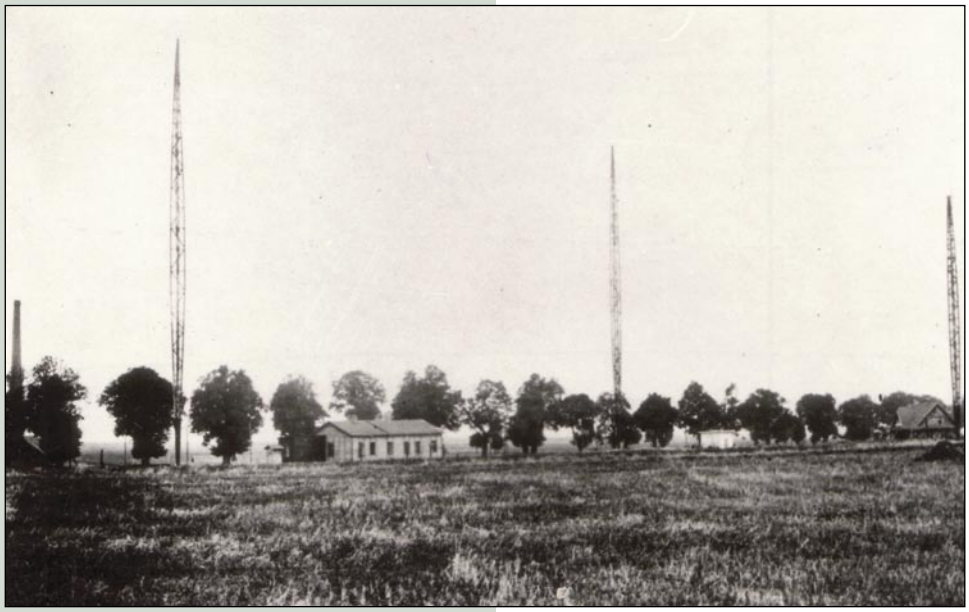
In the meantime, the Telegraph Company, Prague, using field telephone cable, developed the first telephone exchange at Prague castle. The austere conditions in which the Company had to work are evident also from the fact that, due to the shortage of vehicles, its material had to be transported by the semi-trailers connected to trams. Lighting in the workshops was provided by carbide lamps taken from the equipment of Austro-Hungarian Army. In March 1919, the Company was renamed to the 13th Telegraph Company and immediately to 20th Telegraph Company stationed all the time in the Újezd barracks. It was responsible for maintenance of the existing network and installation of new networks. However, insufficient communication of the Czech countries with Slovakia and Sub-Carpathian Ukraine was the main problem that time. In February 1919, based on the insistency of military administration, they established the first telegraph link between Prague and Bratislava. Establishment of communication with foreign countries lasted even longer. Direct telegraph communication between Prague and Paris was established in March 1919. Installation of basic telegraph network was accomplished in 1921. In the year 1918, both the local and trunk telephone networks were in a state of disrepair. Telephone communication with Slovakia did not exist at all and was developed only in May 1919.

Petřín radio station in the year 1922

Based on the decision of National Assembly, the Telegraph Corps tried to solve all the mentioned problems concerning communication with foreign countries, namely with France, by its own means. Using civilian technicians, it quickly installed a radio station at Petřín in Prague. The first antenna was erected on the Petřín view-tower. The pieces of apparatus, a part of which was hired from Prof. Ludvík Šimek of Prague Technical College, were installed in the basement of the tower. The station started transmission on November 29, 1918 already and established the communication with the French station situated on Eiffel Tower. In the first years of existence of Czechoslovakia, the Petřín radio station represented the only rapid communication with European states. Under favourable conditions, they were able to establish communication even with the United States of America. Shortly afterwards, they built up the second radio station in Košice.

Beginnings of the planned development of civilian telegraphy go back to the year 1920. A place for installation of Central Radio Telegraph Station was found in Poděbrady. Its installation by the French Société Française Radioéléctrique company started in August 1921. At the same

Main machine room of the transmitter in Poděbrady

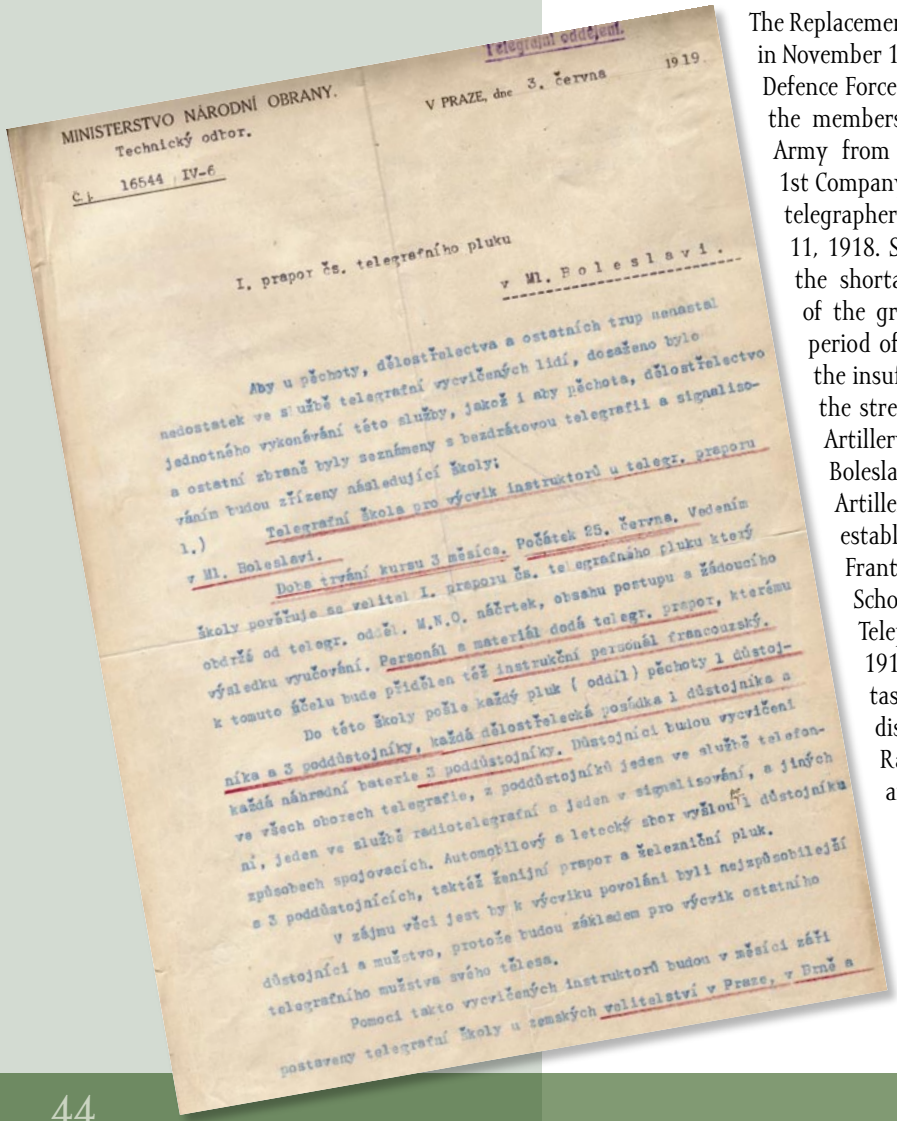


Radio transmitter in Kbely in the year 1923

Transmitter in Košice

time, they built a network of temporary operational stations in Prague – Vinohrady, Komárov by Brno, Prague – Kbely, Bratislava, Košice and other cities. Czechoslovak Republic was very progressive in the sphere of broadcast transmission. Since May 1923, Prague disposed of regular broadcast by 1kW radio station, Kbely, as the first city in Central Europe. In June 1923, the established Society of Czechoslovak Radio Telephonic News Service was renamed to Radiojournal one month later.

The Replacement Battalion of Telegraph Regiment established in Josefov in November 1918 became the basis of Telegraph Corps of Czechoslovak Defence Forces. At the beginning, its manpower consisted namely of the members of former Telegraph Regiment of Austro-Hungarian Army from St. Pölten. On December 1, 1918, they formed the 1st Company of the Replacement Battalion consisting of 50 men (25 telegraphers and 25 linesmen) which left for Slovakia on December 11, 1918. Since the first days of its existence, the battalion faced the shortage of manpower. Gradually it incorporated majority of the graduates of different communication courses from the period of Austro-Hungarian Army. With regard to the fact that the insufficient situation was not radically solved even this way, the strength of Battalion was augmented by the soldiers from Artillery. On March 20, 1919, the battalion moved to Mladá Boleslav where it started telegraph courses for the officers of Artillery and Infantry very soon. On August 11, 1919, they established a Course Company under the command of Captain František Čihák, which became a core of the future Telegraph School. Final examinations of the first Telegraph and Telephone Course were held at the beginning of November 1919. In addition to the training of new members, the task of the battalion was to form provisional units and to dispatch them to Slovakia. On August 1, 1919, they formed Radio Company I and in December – Radio Companies II and III.



MINISTERSTVO NÁRODNÍ OBRANY.
Technický odbor.
Č.j. 16544 / IV-6

Telegrafní oddělení.

V PRAZE, dne 3. června 1919

I. prapor čs. telegrafního pluku
v Ml. Boleslavi.

Aby u pěchoty, dělostřelectva a ostatních trup nenastal nedostatek ve službě telegrafní vycvičených lidí, docíleno bylo jednotného vykonávání této služby, jakož i aby pěchota, dělostřelectvo a ostatní zbraně byly seznámeny s bezdrátovou telegrafií a signalisováním budou zřízeny následující školy:

1.) Telegrafní škola pro výcvik instruktorů u telegr. praporu v Ml. Boleslavi.

Doba trvání kursu 3 měsíce. Počátek 25. června. Vedením školy pověřuje se velitel I. praporu čs. telegrafního pluku který obdrží od telegr. odděl. M.N.O. náčrtek, obsahu postupu a žádoucího výsledku vyučování. Personál a materiál dodá telegr. prapor, kterému k tomuto účelu bude přidělen též instruktční personál francouzský.

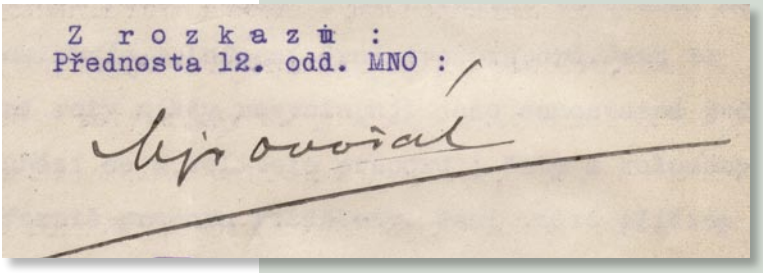
Do této školy pošle každý pluk (oddíl) pěchoty 1 důstojníka a 3 poddůstojníky, každá dělostřelecká posádka 1 důstojníka a každá náhradní baterie 2 poddůstojníky. Důstojníci budou vycvičeni ve všech oborech telegrafie, z poddůstojníků jeden ve službě telefonní, jeden ve službě radiotelegrafní a jeden v signalisování, a jiných způsobech spojovacích. Automobilový a letecký sbor vyšle 1 důstojníka s 3 poddůstojníky, taktéž ženijní prapor a železniční pluk.

V zájmu věci jest by k výcviku povolání byli nejzpůsobilejší důstojníci a mužstvo, protože budou základem pro výcvik ostatního telegrafního mužstva svého tělesa.

Pomocí takto vycvičených instruktorů budou v měsíci září postaveny telegrafní školy u zemských velitelství v Praze, v Brně a

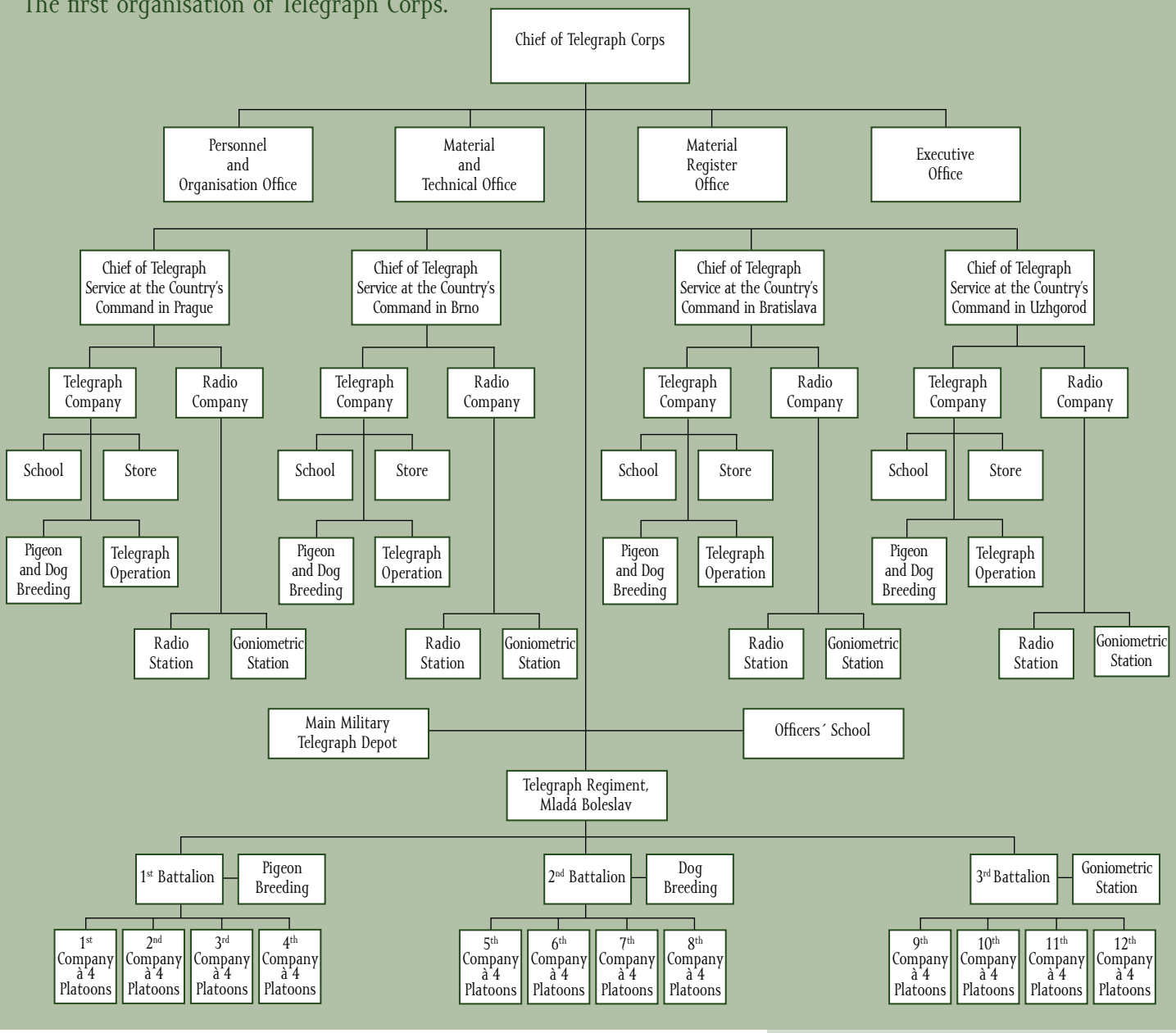
I. PRAPOR ČS. TELEGR. PLUKU, ML. BOLESLAV
I. Radiová stanice
Došlo dne 20 března 1919
Číslo jedn. – příl.

On October 15, 1919, Ministry of National Defence (MOND) established its 12th (Telegraph) Division under the command of Major of Telegraph Corps Josef Dvořák, the man who headed the Telegraph Corps practically during the whole inter-war period. The Division was located at Pohořelec barracks and it issued an Organisation Chart of Telegraph Corps in connection with the elaboration of Organisational Rules. Organisation of Telegraph Corps was elaborated according to direct instructions of French advisors.



The complete suggested organisation included the units intended for direct needs of the Country's Military Commands and, moreover, it established the Telegraph Regiment the mission of which was to provide communication for the commands of the divisions and brigades. In addition to the units and formations of the Telegraph Corps, they established also Telegraph Platoons at the main army branches formations. It was expected that, in case of mobilisation, there will be a need of 400 officers of Telegraph Corps and 11,500 men with telegraph training and 4,600 men with radio telegraph training.

The first organisation of Telegraph Corps.



Brig. General Josef Dvořák (*1892-†)

At the turn of the years 1914 and 1915 he passed a training course at the Telegraph Battalion in St. Pölten. Then, he served at Infantry Regiment No. 15 on Russian front where he was captured in October 1915. In July 1916 he joined the Czechoslovak Legions in Russia. In autumn 1917 he left with the transport to France and after graduation from Signal Service Course in Vadenay, he became Signal Officer of 22nd Rifle Regiment. After coming home to his motherland in January 1919, he was appointed Chief of 12th Division (Telegraph) of MOND. Since the year 1922, he served as the Chief of 21st Division (Telegraph) of MOND and since the year 1927, Chief of 2nd Division (Telegraph) of the MOND Department IV. In April 1931, he was promoted to the rank of Brigade General. In September 1938, he was Commander of Telegraph Corps of the Main Command. After the war, he was not commissioned to serve in active service and in May 1947, he retired.

It wasn't a very happy choice to combine the MOND Telegraph Division within MOND Technical Department with Engineer, Railway and Construction Divisions. Since March 9, 1922, till December 31, 1926, the Division was marked as the 21st (Telegraph) Division of MOND and since May 1926 it was located in the building of the Ministry. On January 1, 1927, it was renamed to 2nd (Telegraph) Division of the MOND (Technical) Department IV (MNOD IV/2). It consisted of the Office of the Chief, Organisational and Training Group, Material Group and Technical Group. The whole time (with the exception of the period from October 1928 to September 1929), the Division was headed by former legionary Josef Dvořák who was promoted to Brig. General in April 1931.

The Organisational and Training Group was responsible for all personal equipment of the officers and warrant officers (WO) of the Telegraph troops and armouries, its replenishment, recording and statistics, appointment of the commanders of tactical bodies of the Telegraph Corps and formations of the Signal Service after an agreement with the Main Staff. It was also responsible for the organisation of Telegraph Corps and Signal Service and for the preparation of mobilisation according to instructions of the Main Staff. In coordination with the Main Staff, it also provided accommodation for the formations of the Telegraph Corps, training of officers and WOs, special-to-arms training of signal units of the other army branches according to the instructions of the Main Staff as well as for the matters concerning Military Telegraph School. It issued regulations, instructions and aids for contact and communication, Signal Service and Field Postal Service. After an agreement with the Main Staff, it performed organisation and mobilisation of the Field Postal Service.

Technical Group was responsible for preparation, establishment, maintenance, operation, readiness and recording of permanent military telegraph, telephone, radio-electrical and pigeon communication and facilities as well as for the recording of national and private communication facilities and for issuing of telegraph and telephone maps. In cooperation with the Main Staff it made decisions concerning establishment, maintenance and changes of national and private communication facilities. It attended to military and civilian messenger pigeon breeding. Its competence included also the inventions in the sphere of communication equipment.

Material Group kept records of the budget of the whole Division and administered it. It was also responsible for the management and upgrading of communication material, its purchase, acquisition and recording. It supplied all the formations of arms and services by augmentation and training communication material through the Country's Military Commands and, later on, through the Corps as well. It controlled the Signal Service and cared for Military Telegraph Workshops and Military Telegraph Depots. It kept records of producers and businessmen dealing with radio-electrical devices and components. In coordination with General Secretariat of the State Defence it also participated in development and preparation of the war industry. It also participated in the import and export of communication material.

As early as at the end of the year 1919, the Telegraph Corps was allocated its war tasks and the war strength of its organisation. In case of mobilisation, the Telegraph

Training with Kapsh-type Austrian telephone apparatus

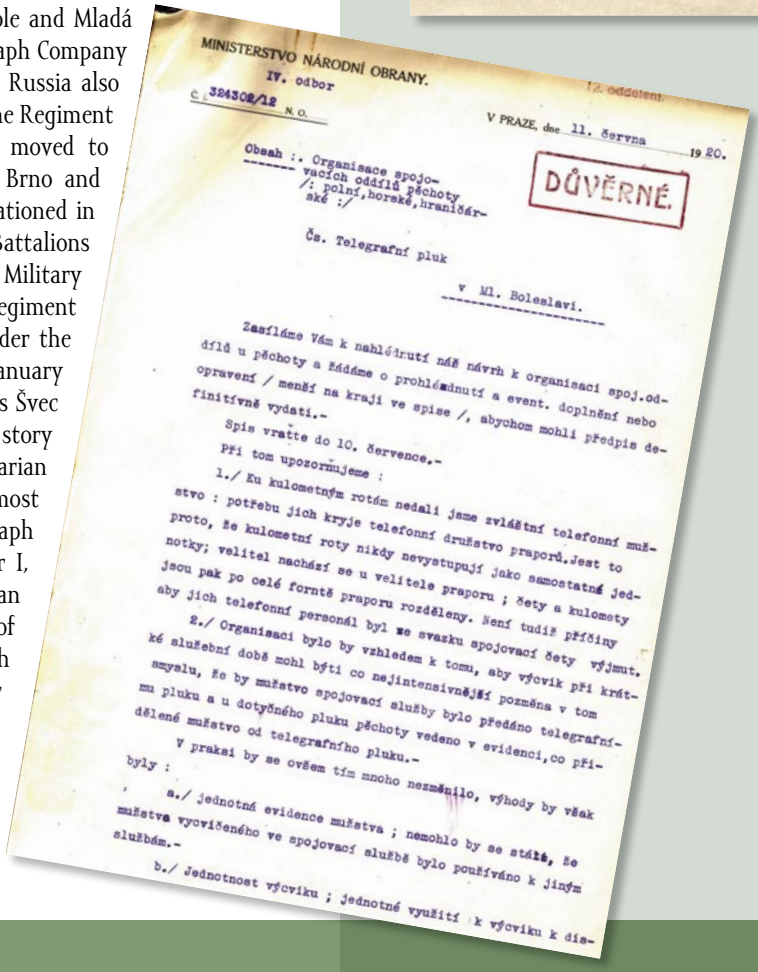
Regiment was expected to form the units of Telegraph Corps in the extent shown in the below mentioned table. However, if we consider the total capacity of the trained specialists of Telegraph Corps, it is quite evident that the prescribed mobilisation tasks were not based on actual possibilities and they were rather symbolic.

Sleeve insignia of the member of Telegraph Corps from the year 1919

Mobilisation strength of telegraph units and formations

Name of formation – uni	Number of established units	Prescribed strength for one unit		Remarks
		Officers	Rank and File	
Supreme Headquarters Telegraph Company	1	16	702	
Army Headquarters Telegraph Companies	4	13	549	
Telegraph Companies for Infantry Divisions	32	7	360	
Telegraph Companies for Cavalry Divisions	4	7	360	
Telegraph Companies for Mountain Brigades	4	6	300	
Army Depot	5	2	72	1 for Main Command 4 for Armies
Army Construction Units	6	4	100	For construction and exploitation of permanent facilities
Permanent Radio Station	12	4	15	

The Telegraph Corps was officially established on April 1, 1920 within running unification of the Czechoslovak Defence Force consisting of the inland troops and Czechoslovak Legions abroad as one of the supporting arms of the Defence Force.
Telegraph Regiment was established on the basis of the order dated January 6, 1920. However, development of its full strength consisting of three battalions with twelve companies was accomplished as late as in October 15, 1920. Headquarters of the Regiment was located in Mladá Boleslav. At the same time, they established three Replacement Companies based in Kutná Hora, Královo Pole and Mladá Boleslav. After coming back to Czechoslovakia, the Telegraph Company and Radio Telegraph Company of Czechoslovak Troops in Russia also became a part of the Telegraph Regiment. In April 1921, the Regiment Headquarters together with the Telegraph Battalion I moved to Kutná Hora; the Telegraph Battalion II was located in Brno and since September 1921, the Telegraph Battalion III was stationed in Trnava. This relocation was the basis for making the Battalions independent and for their assignment to the Country's Military Commands. Replacement Battalion of the Telegraph Regiment remained in Mladá Boleslav. Telegraph Regiment was under the command of Major of Telegraph Corps Otakar Vácha (till January 1921) who was replaced by Major of Telegraph Corps Alois Švec (promoted to Lt. Colonel in December 1922). His life story deserves a short mention. A graduate of Austro-Hungarian telegraph and radio telegraph courses belonged to the most skilled soldiers of Telegraph troops. He served in the Telegraph Regiment in St. Pölten and in the course of World War I, he passed through a number of functions in the Austrian Army including commander of radio telegraph groups of the Supreme Army Command and chief of Radio Telegraph Division of the Experimental Institute of Ministry of War in Vienna. In December 1919, he became commander of Telegraph Service of the Country's Military Command for Slovakia in Bratislava. When the Telegraph Regiment was disbanded, he was put in command of the School for Telegraph Troops and Military Telegraph School.


MINISTERSTVO NÁRODNÍ OBRANY.
IV. odbor
Č. 324302/12 N. O.
V PRAZE, dne 11. června 19 20.
DŮVĚRNÉ.
Obsah :. Organisace spojovacích oddílů pěchoty /: polní, horské, hraniční :/
Čs. Telegrafní pluk
v Ml. Boleslavi.
Zasíláme Vám k nahlédnutí náš návrh k organisaci spoj.oddílů u pěchoty a žádáme o prohlédnutí a event. doplnění nebo opravení / menší na kraji ve spise /, abychom mohli předpis definitivně vydati.-
Spis vraťte do 10. července.-
Při tom upozorňujeme :
1./ Ku kulometným rotám nedali jsme zvláštní telefonní mužstvo ; potřebu jich kryje telefonní družstvo praporů. Jest to proto, že kulometní roty nikdy nevystupují jako samostatné jednotky; velitel nachází se u velitele praporu ; čety a kulomety jsou pak po celé frontě praporu rozděleny. Není tudíž příčiny aby jich telefonní personál byl ze svazku spojovací čety vyjmut.
2./ Organisaci bylo by vzhledem k tomu, aby výcvik při krátké služební době mohl býti co nejintensivnější pozměna v tom smyslu, že by mužstvo spojovací služby bylo předáno telegrafnímu pluku a u dotyčného pluku pěchoty vedeno v evidenci, co přidělené mužstvo od telegrafního pluku.-
V praksi by se ovšem tím mnoho nezměnilo, výhody by však byly :
a./ jednotná evidence mužstva ; nemohlo by se státi, že mužstvo vycvičeného ve spojovací službě bylo používáno k jiným službám.-
b./ Jednotnost výcviku ; jednotné využití k výcviku k dis-

Members of Telegraph Battalion I in Kutná Hora in the year 1921

In January 1936, he retired. In the years of World War II, he acquired German citizenship, changed his name to Schwetz and actively collaborated with Nazis. After the war, he was condemned to life imprisonment and in 1953 he died in prison.

The Telegraph Regiment operated only as an administrative unit and its individual battalions were subordinated to the Country's Military Commands for Bohemia, Moravia and Silesia and for Slovakia. Serving for the needs of the Country's Military Command for Sub-Carpathian Ukraine the respective Telegraph Company was assigned to the Telegraph Battalion III. Individual battalions had different number of companies which was influenced by the number of divisions deployed in the given territory. Within reorganisation of the Telegraph Regiment in August 1921, they formed one Replacement

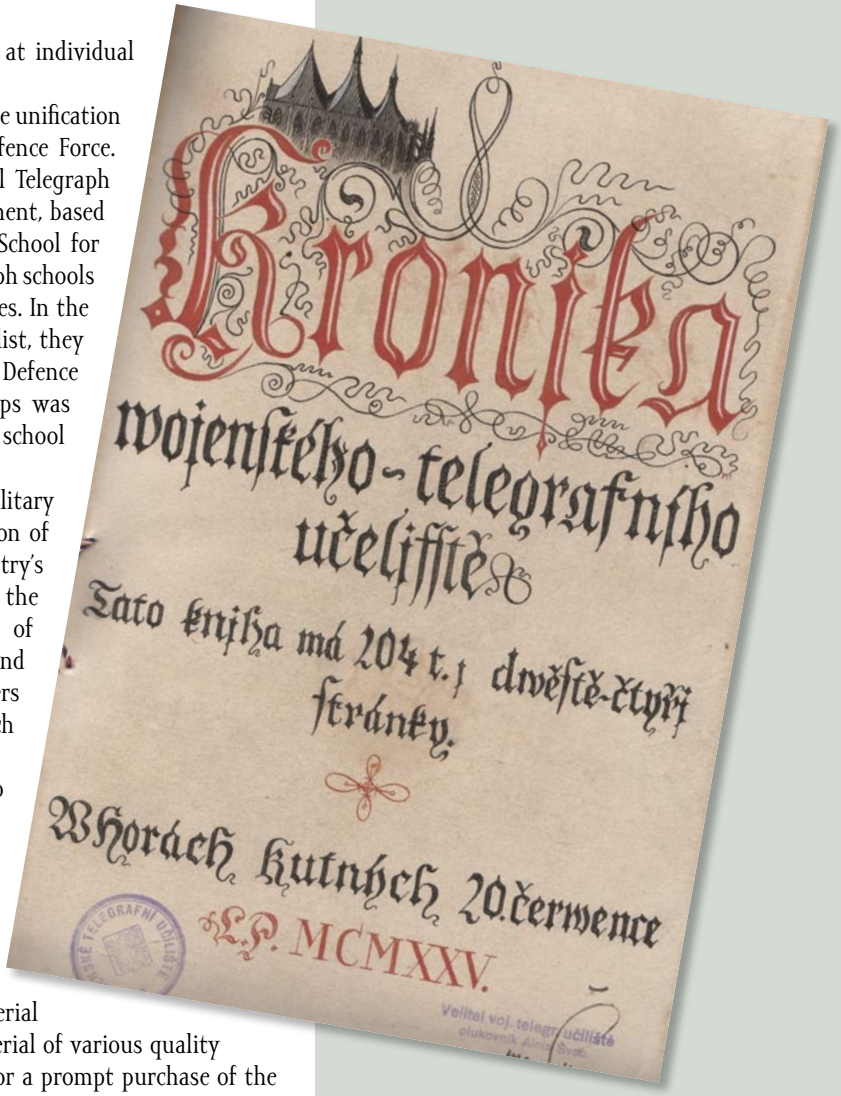
Members of Telegraph Battalion III in Trnava in the year 1923

Battalion and the Replacement Companies kept operating at individual battalions.

One of the first missions of the Telegraph Corps was to provide unification of the communication within the whole Czechoslovak Defence Force. For this reason, in January 1921, they established Central Telegraph School at the Replacement Battalion of the Telegraph Regiment, based in Kutná Hora. On March 1, 1922, it was reorganised to School for Telegraph Troops. All the three battalions established telegraph schools which started training of the signalmen of all army branches. In the course of several years, by the help of newly trained specialist, they succeeded to unify the communication within the whole Defence Force. On October 1, 1928, the School for Telegraph Troops was renamed to Military Technical School. One week later the school was moved from Kutná Hora to Turnov.

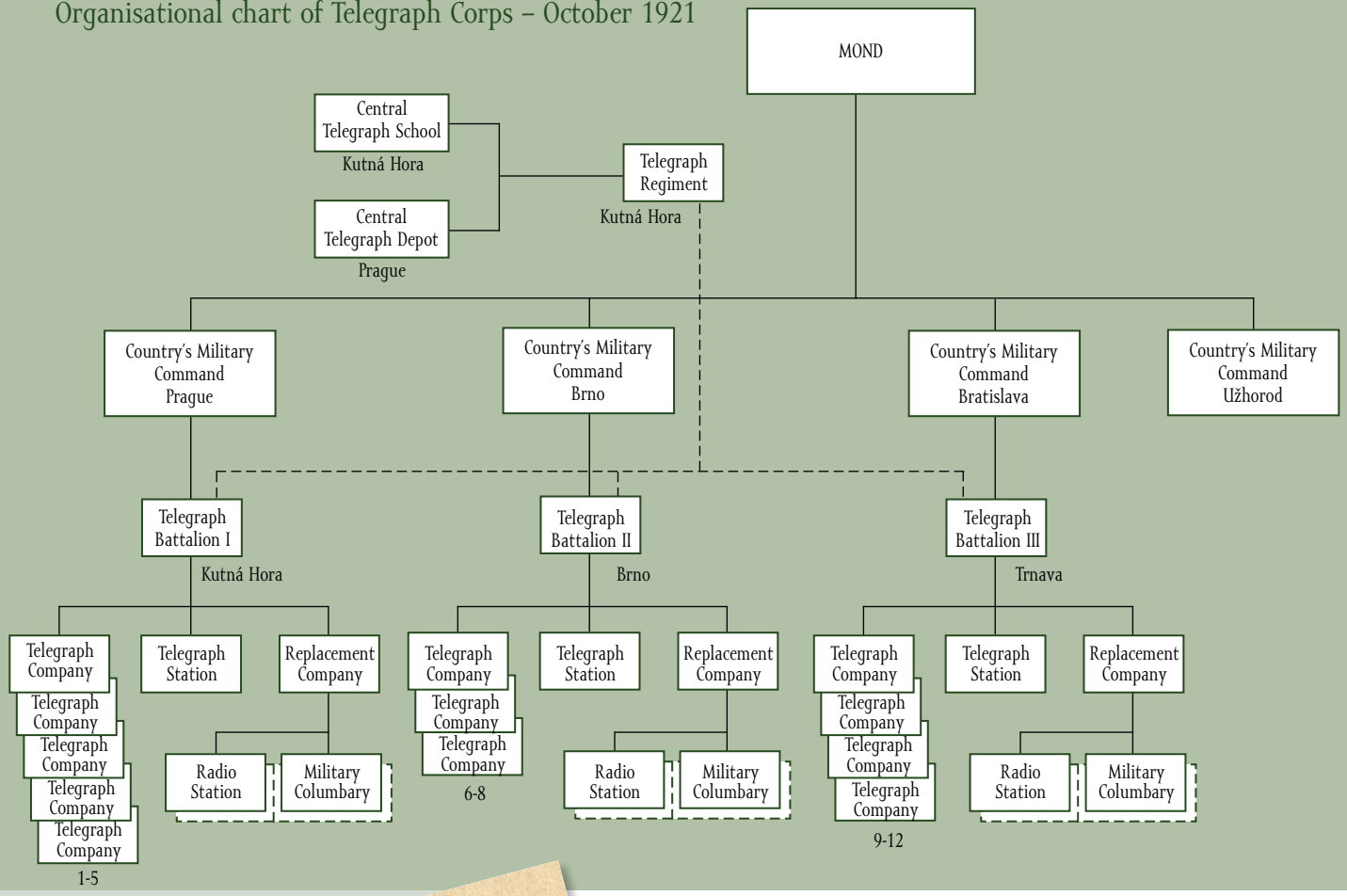
New Signal Officers of individual divisions and Country's Military Commands were appointed together with the reorganisation of Telegraph Corps. The function of Signal Officer of the Country's Military Command was performed by the commander of the respective telegraph battalion. Appointment to the post of Signal Officers of Country's Military Commands, divisions and to the posts of battalion commanders and other commanders of the same level was subject to approval of the French advisors.

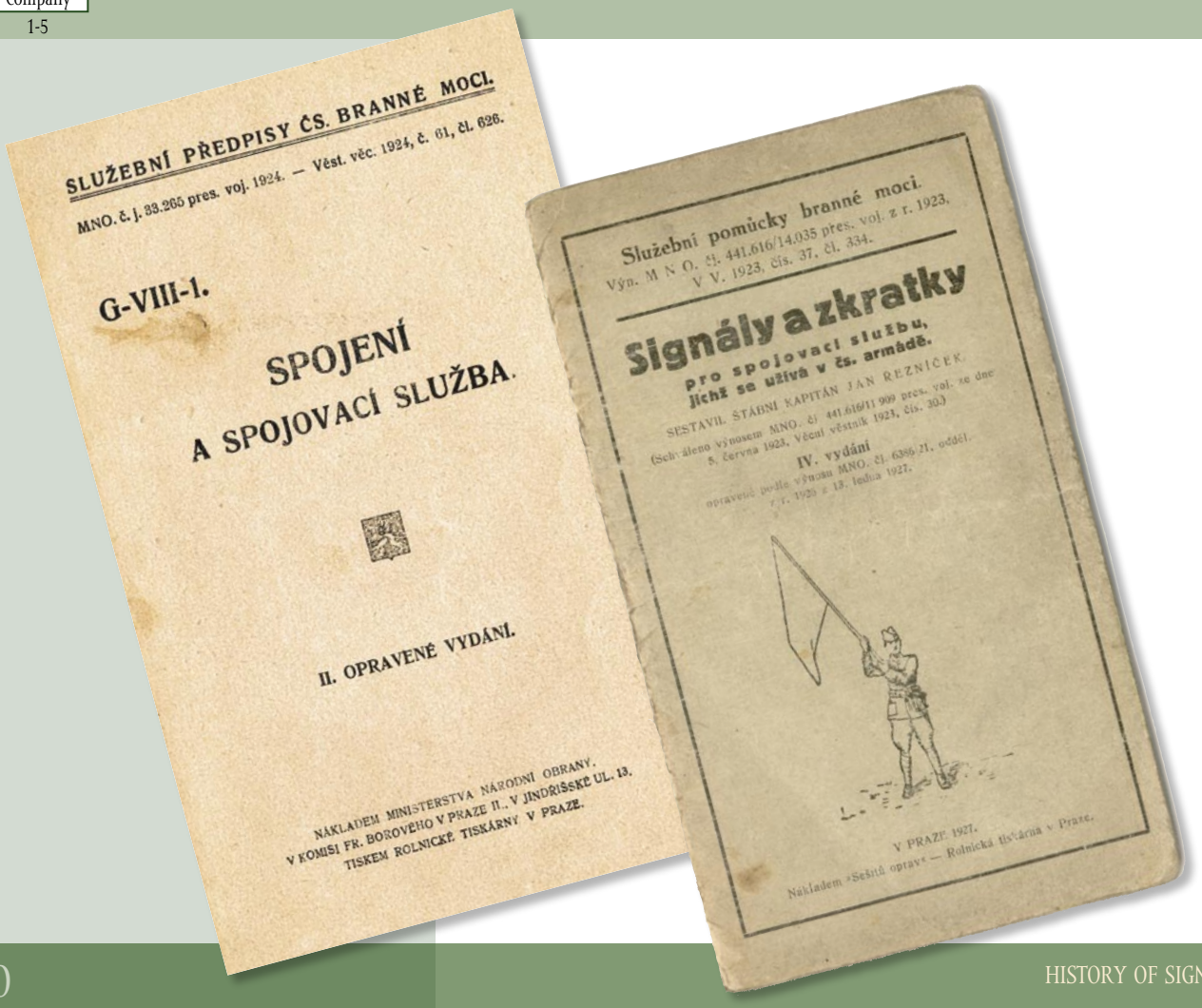
As a response to the attempt of former Emperor Karl to accede to Hungarian throne, there was a partial mobilization organised in October 1921. It proved good preparedness of the Czechoslovak Defence Force but, at the same time, it discovered the deficiencies in material equipment of the Telegraph Corps. The communication material was at disposal for six divisions and, after minor replenishment, it would be possible to equip another six divisions. Material reserves were enough for six months. However, it was material of various quality and type. Instead of implementation of the initial efforts for a prompt purchase of the material from the foreign suppliers, they accepted a definite decision to create our own production capacities in the sphere of radio technical industry.



Members of Telegraph School in Kutná Hora in the year 1926

Organisational chart of Telegraph Corps – October 1921





The period from the year 1918 to 1922 can be characterized as a phase of organisational development, training, development of basic communication means and elaboration of the most important regulations. That time, telegraph units provided communication usually by permanent networks and at minor division-level exercises.

A certain turn in the development of the Telegraph Corps comes about in the year 1923. The first large manoeuvres of the Czechoslovak Defence Force required rapid development of the Telegraph Corps. They issued a draft of regulations titled: "Liaison and Communication" (G-VIII-1) which offered the first instructions for unified rectification of the principles of communication and operation of the Telegraph Corps as a whole. In order to provide the communication for the main command, field armies and divisions, they established a Telegraph Regiment for the case of need of a signal unit within the extent shown in the above mentioned table.

Organisational Structure of Field Telegraph Units

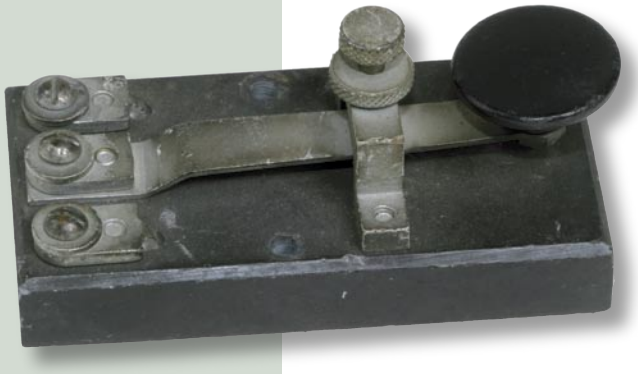
Headquarters	Basic communication unit	Organisational break up	Remark
Main Headquarters	1 Field Army Telegraph Company	1 Heavy Headquarters Platoon	
		3 Heavy Telegraph Platoons	
		2 Light Telegraph Platoons	
	3 – 5 Construction Companies	each consisting of 4 Construction Platoons	They are attached to the armies for installation and exploitation of permanent telephone and telegraph facilities.
	1 Field Army Radio Telegraph Company	1 Army Radio Telegraph Platoon	
		2 Army Radio Telegraph Monitoring Platoons	
Army Headquarters	1 Field Army Telegraph Company	composition the same as in case of Main HQ	
	1 Field Army Radio Telegraph Company		
Infantry Division Headquarters	1 Field Division Radio Telegraph Company	1 Light Headquarters Platoon	
		1 Heavy Telegraph Platoon	
		3 Light Telegraph Platoons	
		1 Field Radio Telegraph Platoon	
Mountain Infantry Brigade Headquarters	1 Mountain Telegraph Company	1 Light Headquarters Platoon	
		2 Light Telegraph Platoons	
		1 Mountain Radio Telegraph Platoon	
Cavalry Brigade Headquarters	1 Cavalry Telegraph Company	1 Light Headquarters Platoon	
		1 Light Radio Telegraph Platoon	
		2 Cavalry Radio Telegraph Platoons	

On March 19, 1923, MOND issued the following Order: *"As the training in Signal Service is not yet fixed and unified enough, the training and mobilization material is not definitely stored and the frontier networks are not arranged enough, it is hereby ordered to systematize the posts of Chiefs of Signal Service at Division Headquarters and Mountain Infantry Brigade Headquarters. This systemisation is temporary and will last till the end of February 1924 only. In order to enable the Telegraph Corps to appoint officers to the posts, 14 officers of major army branches will be temporarily attached to the Telegraph Corps for a period of one year. The officers will immediately come on duty at the Telegraph Battalions to be introduced to the executive Signal Service."*

In order to provide communication in the units of the major army branches, they established signal units in the following extent:

a) at Infantry:
   Infantry Regiment – Signal Company
   Mountain Regiment – Signal Platoon
   Mountain Frontier Battalion – Signal Platoon
b) at Artillery:
   Artillery Regiment – Signal Platoon
   Artillery Battalion – Signal Platoon
   Artillery Battery – Signal Team
c) at Cavalry:
   Cavalry Regiment – Signal Platoon

Balloon Company disposed of 6 pieces of telephone apparatus



Number of communication means was prescribed together with the organisation of the units:

Allocation of telegraph and telephone equipment

Headquarters	Switchboard for			Telephone Station	Field telephone apparatus in total	km				Hughes Station	Morse Station
	8	15	40			Light field cable	Heavy field cable	Cavalry cable	Permanent line		
	double lines										
Army Headquarters	4	14	12	40	140	192	160	16	180	12	14
Division Headquarters	6	5	2	20	66	192	40	32	10	1	2
Mountain Infantry Brigade Headquarters	2	3	2	12	38	96	40	16	5	1	1
Cavalry Brigade Headquarters	2	2	1	8	26	96	-	16	5	-	1
Army Group Headquarters	-	3	3	12	36	48	80	12	15	3	3
Infantry Regiment Headquarters	-	1	-	2	6	24	-	4	-	-	-
Infantry Battalion	1	-	-	2	6	12	-	12	-	-	-
Mountain Regiment Headquarters	-	1	-	2	6	18	-	4	-	-	-
Mountain and Frontier Battalion	1	-	-	2	6	30	-	4	-	-	-
Detached Infantry Battalion	1	-	-	2	6	12	-	4	-	-	-
Heavy, Light, Frontier and Mortar Artillery Regiment Headquartes	-	1	-	2	6	36	-	4	-	-	-
Mountain Artillery Regiment Headquarters	-	1	-	2	6	-	-	42	-	-	-
Artillery Battalion Headquarters	-	1	-	2	6	36	-	4	-	-	-
Mountain Artillery Battalion Headquarters	-	1	-	2	6	-	-	30	-	-	-
Anti-aircraft Battalion Headquarters	-	1	-	2	6	24	-	4	-	-	-
Artillery Battery	1	-	-	2	6	24	-	6	-	-	-
Mountain Artillery Battery	1	-	-	2	6	-	-	30	-	-	-
Anti-aircraft Battery	-	1	-	4	10	48	-	8	-	-	-
Artillery Measuring Company	2	-	-	6	16	60	60	8	-	-	-
Division Ordnance Units Headquarters	1	-	-	2	6	12	-	2	-	-	-
Cavalry Regiment	2	1	-	9	24	-	-	84	-	-	-
Bicycle Squadron	1	-	-	3	8	-	-	18	-	-	-
Squadron	1	-	-	1	4	12	-	2	-	-	-
Baloon Company	1	-	-	2	6	24	-	4	-	-	-
Field Engineer Company	1	-	-	4	10	24	-	8	-	-	-

Flare (rocket) pistol, Model 30

In addition to the telephone and telegraph equipment which was considered as basic material, they set also allocation of other communication means.

Allocation of other means of communication

Headquarters	Radio stations with telegraphy on pure continuous wave			Receivers	Earth Telegraphy Station	Signal Station		Identification and signal marks set	Horse riders	Cyclists	Runners	Dogs	Columbaries	Remark
	Major	Medium	Minor			Major	Minor							
Army Headquarters	1	1	-	6	-	-	-	1	-	-	-	-	4	
Division Headquarters	-	4	-	-	1	4	-	1	-	-	-	-	2	
Mountain Infantry Brigade Headquarters	-	1	-	-	1	3	-	1	-	-	-	-	2	
Cavalry Brigade Headquarters	-	4	-	-	-	2	-	1	-	-	-	-	2	
Army Group Headquarters	1	1	-	-	-	-	-	1	-	-	-	-	2	
Infantry Regiment Headquarters	-	-	1	-	2	1	2	1	2	2	2	-	-	
Infantry Battalion	-	-	-	-	1	-	2	1	1	1	2	2	-	
Mountain Regiment Headquarters	-	1	-	-	-	1	2	1	2	2	2	-	-	
Mountain Frontier Battalion	-	4	-	-	-	3	-	1	2	2	2	3	-	
Artillery Regiment Headquarters	-	-	2	-	-	1	2	1	2	2	2	2	-	
Artillery Battalion Headquarters	-	-	2	-	-	1	2	1	2	2	2	2	-	
Artillery Battery	-	-	-	-	-	-	2	1	-	-	-	-	-	
Artillery Measuring Company	-	-	1	-	-	-	-	1	2	2	-	-	-	
Cavalry Regiment	-	-	2	-	-	3	-	3	-	-	-	-	-	
Squadron	-	1	5*	-	-	1*	5*	-	-	-	-	-	-	*Aviation
Baloon Company	-	1	-	-	-	-	1*	-	-	-	-	-	-	

Specification of the organisational structure and number of the communication means was based on war experience, organisational structure of Czechoslovak Defence Force and the amount of material which was at disposal that time. Nevertheless, as far as manpower, equipment and communication means are concerned, it was not an organisation which would be able to reach actually the required strength. In the given conditions, it could satisfy only about 50 to 60%. However, the planned organisational structure and the allocated number of equipment and communication means enabled the organisation of communication according to certain unified system. Proposal of the system expected that the command of the troops in field will be supported namely by the permanent telephone and telegraph network, permanent military radio stations and, on the level of Army, by the field radiotelegraph networks.

Permanent military radio-telegraph station in the year1924

On November 1, 1924, the Telegraph Regiment Headquarters was disbanded and individual battalions achieved an organisational independence. As a result of the organisational changes, the telegraph battalions were renamed the same day. The Telegraph Battalion No. 1, located in Kutná Hora, was subordinated to the Country's Military Command for Bohemia (since September 1925, Country's Military Command in Prague); Telegraph Battalion No. 2, based in Brno, was subordinated to the Country's Military Command for Moravia and Silesia (since September 1925, Country's Military Command in Brno) and Telegraph Battalion No. 3, stationed in Trnava, was subordinated to the Country's Military Command for Slovakia (since September 1925, Countries Military Command in Bratislava). The Telegraph Battalion No. 1 consisted of the following subordinate units: Telegraph Companies No. 1, 2 and 4 in Kutná Hora and the Telegraph Companies No. 3 and 5 in Čáslav. The Telegraph Battalion No. 2 consisted of Telegraph Companies No. 6, 7 and 8 in Brno. The Telegraph Battalion No. 3 involved the Telegraph Companies No. 9, 10, 11 and 12 in Trnava. Number of the telephone companies was still influenced by the number of the supported combined-arms divisions. On August 15, 1926, they established Telegraph Battalion No. 4, based in Prešov, for the needs of the Country's Military Command in Košice which replaced the cancelled Country's Military Command in Uzhgorod in September 1925. The Battalion was given the Telegraph Companies No. 11 and 12 to its subordination. They moved from Trnava to Prešov. Each telegraph battalion kept including the telegraph store and the replacement company with radiotelegraph stations and military columbary. From specialisation point of view, the telegraph battalions were subordinated to the 21st (Telegraph) Division of MOND, in other cases, to the respective Country's Military Command. On October 1, 1926, each telegraph battalion established a new radiotelegraph company. The Radio Telegraph Company No. 1, Kutná Hora, was subordinated to the Telegraph Battalion No. 1; Radio Telegraph Company No. 2, Brno, to the Telegraph Battalion No. 2; Radio Telegraph Company No. 3, Trnava, - to the Telegraph Battalion No. 3 and the Radio Telegraph Company No. 4, Prešov, was subordinated to the Telegraph Battalion No. 4.

At the beginning of the year 1926, the radio telegraph companies of the communication centres of divisions of major army branches were concentrated in the Telegraph Battalion No. 2 in Brno. This organisational change was made in an effort to unify the radiotelegraphic training. However, it was evident in few months that the concentration of the radio telegraph companies did not bring the expected benefit. With regard to the fact that individual divisions organised their exercises in different time periods, the wireless operators were very often sent back to their basic battalions where they took part in the exercises. At the end of the year 1926, a new decision cancelled the concentration of radio telegraph companies and they returned back to their battalions.

In the second half of the twentieth, the Czechoslovak Defence Force experienced total stagnation which did not avoid even the Telegraph Corps. The organisational structure and system of command, following from, beside other things, the existing types and number of communication

Sleeve insignia of the member of Telegraph Regiment

Sleeve insignia of telegrapher and telephonist

Warrant Officer III of a telegraph regiment

Training with radio station, Model 23

Tatra T 20/20Sp radio van from the year 1925

Artillery Balloon Company in Jince in the year 1931

means, were developed with an effective assistance of our most important allay – France. Regarding the fact that France kept adhering namely to the experience from World War I, they stayed behind the quickly changing principles of battle procedure forced namely by the proceeding motorization of troops and introducing of new kinds of combat equipment. In that period, the deficiencies were already so big that the Command of Telegraph Troops had to do their utmost to speed up the development of our own communication means of all kinds and to replace at least the obsolete and insufficient equipment. Shortage of manpower, NCOs, WOs and officers still lasted in the Telegraph Corps so that in the year 1927, the actual strength did not exceed 60% of the planned strength of officers and 70% of the planned strength of NCOs and manpower.

The peacetime organisational structure did not experience any changes but the practice organisation of Signal Corps was continuously specified, supplemented and adapted to the conditions of actual need , namely for the end-of-training exercises. The tables of practice organisation of Signal Troops for the end-of-training exercises in 1928 applied the requirements based on the analysis of deficiencies of the past years. The end-of-training exercises in the years 1927 to 1929 proved that the existing organisational structure is not tolerable from the viewpoint of control of the combat activity of troops. This knowledge followed from the objective conditions of the control of extensive operations at continuous increasing of the rate of combat activity because its control depended namely on the technical means supporting this control. The technical means, being in disposal of the Defence Force, did not already satisfy the requirements put by their own qualities. They had to look for new organisation forms which would solve the shortages of technical means for the command at least partially.

These facts finally made the Defence Force Command to think of fundamental changes in the organisational structure of troops.

At the end of the twentieth, the first proposals how to solve the stagnation of the Telegraph Corps appeared. The 2nd (Telegraph) Division of the Department IV of MOND suggested to remove the defects caused by the initial organisation from the year 1919 already. The average yearly expenditures for the acquisition of communication material, representing about 7 million CZK till the year 1926 and nearly 15.5 million CZK in the following years, were also gradually increasing.

In May 1930, the 2nd (Telegraph) Division of the MOND Department IV elaborated a definite wartime organisation of Telegraph Corps. However, because of the personnel and material reasons, its implementation was able only in phases. According to the new organisation, the Main Command of the operating armies should have one radio telegraph company and one construction company. Each Army Group should have one army telegraph company and one army radio telegraph company. Each army had established two army telegraph companies, one army radio telegraph company and one construction telegraph company. Divisions should have divisional Telegraph Corps headquarters, divisional telegraph company, divisional radio telegraph company and divisional telegraph park. This new wartime organisation required 29 thousand soldiers for the Telegraph Corps only. It should be a final version of the organisation which would be gradually implemented according to the number of manpower and amount of financial resources at disposal. The proposal required to form the following units in the mobilisation period of 1931/33 already: one telegraph company and one radio telegraph company of the Main Command of the operating armies, eight army telegraph companies numbered from 1 to 8 (two for each army) and five telegraph companies numbered from 1 to 5 (one for each army and one for the Main Command of the operating armies).

Telephone exchange at the end-of-training cycle exercise

COMMUNICATION EQUIPMENT IN THE YEARS 1918–1932

Basic problem faced by the Telegraph Corps since its very beginning was an acute shortage of communication material. Except for the communication equipment left on the territory of the newly established Czechoslovak Republic by the former Austro-Hungarian Army, the basis of the initial equipment of Telegraph Corps consisted namely in the material from the original outfit of Czechoslovak Legions. The largest amount of the communication equipment was brought by legionaries from Russia (its value represented 1,633,062 CZK). Other material was purchased from the surplus war stores of German, Austrian and French Armies. In addition to the problematic quality of the material acquired this way, it was also unprecedented variety of types and large extent of components necessary for the repair of the communication equipment connected with it. Regarding the fact that the continuing purchases of the material from abroad were standing against newly formed Czechoslovak industry, the Czechoslovak Defence Force was expressing its effort to find national producer of communication equipment since the first months of its existence. Eight radio technical industry companies were founded in the first post-war years already.

In October 1919, they established a semi-national Telegrafia Company, JSC, Prague, the Czechoslovak factory producing telegraphs and telephones, with 51% share of the state. In rather very short tome, the Telegrafia started production of telephone apparatus of all kinds, which, thanks to their quality, were able to replace the foreign designs. Since 1924, Telegrafia produced telegraph apparatus and thus it made Czechoslovakia self-sufficient in this branch. In 1921, French Société Française Radio Electrique and Křižík Factory founded Radioslavia Company dealing with production of radio telegraph stations and apparatus. Since 1922, the telephone and telegraph cables were produced by Prague Kablo Company and Bratislava Továreň na kábele (Cable producing factory). Since 1923, Radioelektra factory located in Prague-Hloubětín produced electronic valves.

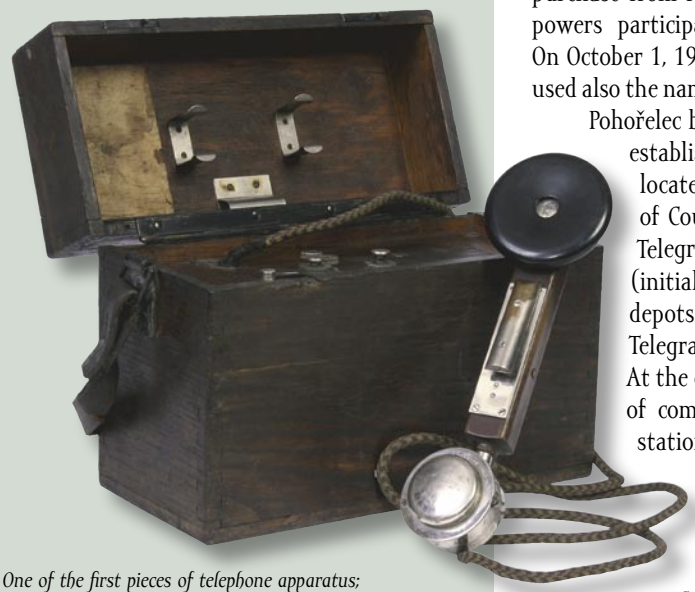
The task to acquire, receive, deliver, store, produce and repair the communication equipment and, for this reason, to prepare technical personnel, laid on the Technical Service of the Telegraph Troops (later called Signal Service) within the Czechoslovak Defence Force. In November 1918, they established Central Telegraph Depot in the barracks at Prague-Újezd. First Lieutenant Brož was its first commander. In June 1919, the depot was enlarged by Telegraph Material Repair Workshop.

Main Military Telegraph Depot was located in the rear wing of Pohořelec barracks

The first personnel of the Main Military Telegraph Depot

At the same time, together with the change of its name to Main Military Telegraph Depot, it was moved to the buildings at Prague-Pohořelec. The depot was divided to wire and wireless section. With regard to a large variety of types of the communication material coming from the war trophy, armament of the Legions and purchase from Austria, Germany and France, one could find there material of all the powers participating in World War I.

On October 1, 1920, the depot was renamed to Central Telegraph Depot (sometime, they used also the name of Czechoslovak Central Telegraph Depot and Workshops) still based in Pohořelec barracks and subordinated to Telegraph Regiment. Simultaneously, they established a Telegraph Depot of Country's Military Command for Bohemia located in Mladá Boleslav (since April 1921, in Kutná Hora), Telegraph Depot of Country's Military Command for Moravia and Silesia located in Brno and Telegraph Depot of Country's Military Command for Slovakia based in Trnava (initially, it was located in Leopoldov). From specialisation point of view, the depots were subordinated to Central Telegraph Depot but in other cases, to Telegraph Regiment.



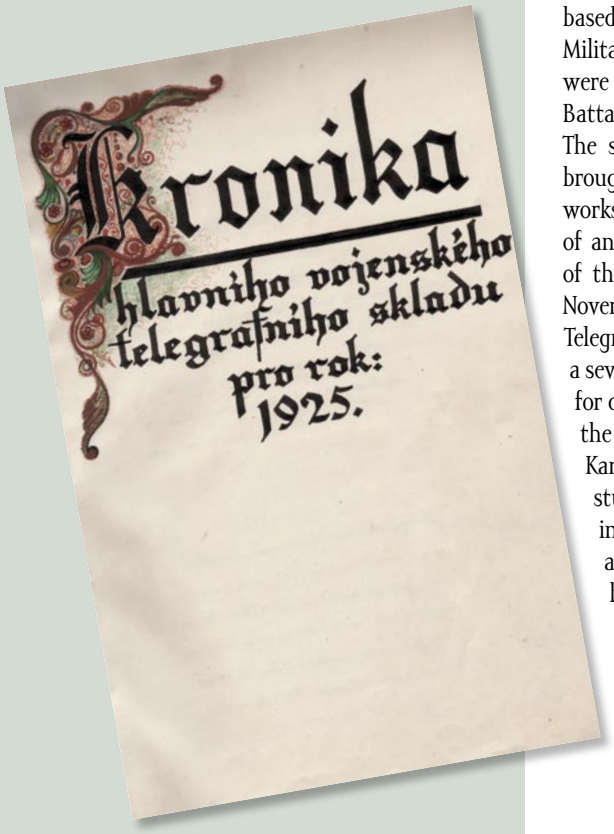
One of the first pieces of telephone apparatus; product of B. and K. Prchalové Company, Kolín

At the end of the year 1920, they managed to concentrate considerable amount of communication material including e.g. 14,646 field telephones, 92 radio stations, 42 stations for earth telegraphy, 90 pieces of telegraph apparatus of Morse type or 39 pieces of telegraph apparatus of Hughes type.

On February 1, 1922, the Central Telegraph Depot was renamed to Main Military Telegraph Store; the Telegraph Depot of Country's Military Command for Bohemia to Telegraph Store of Country's Military Command for Bohemia, the Telegraph Depot of Country's Military Command for Moravia and Silesia to Telegraph Store of Country's Military Command for Moravia and Silesia, the Telegraph Depot of Country's Military Command for Slovakia to Telegraph Store of Country's Military Command for Slovakia.

In February 1925, the Main Military Telegraph Depot took over newly build store building in Kutná Hora, In April 1925, command of the store moved also to Kutná Hora. With regard to the change of name of the Country's Military Commands, there was another renaming of individual telegraph stores. Telegraph Store of the Country's Military Command, Prague, was situated in Kutná Hora; Telegraph Store of the Country's Military Command, Brno, was located in Brno; Telegraph Store of the Country's Military Command, Bratislava, was based in Trnava. On August 15, 1926, they established new Telegraph Store of the Country's Military Command, Košice, situated in Prešov. From specialisation point of view, the stores were subordinated to the Main Military Telegraph Depot but in other cases, to Telegraph Battalion of the respective Country's Military Command.

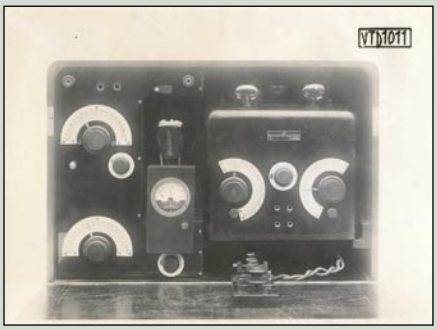
The stores of the Central Telegraph Depot were receiving the communication material brought by the Legions and purchased from the surplus war stores. Production in the workshop was entirely manual. With regard to the fact that the workshops did not dispose of any working machine except a primitive foot lathe, they executed only minor repairs of the communication material. In November 1921, the Central Telegraph Depot established a seven-member study commission for determination of the models of the pieces of apparatus. Lieutenant Karel Deyl who returned from his study at Radio Telegraph Academy in Paris few days ago became also its member. The Workshops began gradually separate from the Depot and, at the same time, they acquired more and more modern equipment, namely lathes and joiner's machines.



Telephone apparatus, Model 23

At the end of the year 1922, the Workshops employed 33 civilian employees and the chief of the 21st (Telegraph) Division of MOND Col. Dvořák strived for their further development. That year, they started series production of the first apparatus, practice buzzer set, Model 22, used at practicing Morse alphabet. The following year, the Defence Force began taking deliveries of other product from the Workshops. It was namely the new model of telephone apparatus, Model 23, which, comparing with previous type, was characterized by smaller size and weight. The taken delivery included also an octuple switchboard used in the connection of the stations of different military formations. The Workshops delivered the first eight TRD I trench radio stations for the autumn manoeuvres of the Army held nearby Polička in September 1923. It was the first product of this kind in Czechoslovakia. The station was given the name of its designers (Staff Captain Tomský, Staff Captain Racek and Second Lieutenant Deyl - TRD). The Army appreciated namely the simple operation of the stations. They proved to be useful so much that the Army immediately ordered their series production under the name of Radio Station, Model 23. Assessment of the manoeuvres included also a critique of insufficient skill of wireless operators, low-quality of the cables for lines and variety of types of the telephone apparatus. It was recommended to introduce one type of the field telephone as soon as possible. On the contrary, the use of messenger pigeons was assessed as very good.

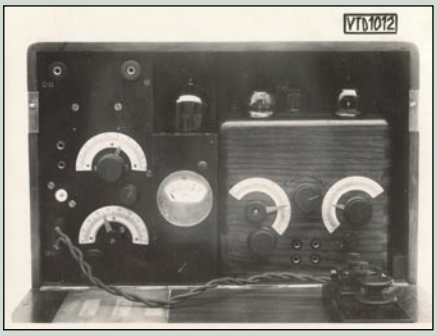
Designers of TRD radio station (from the left: Tomský, Racek, Deyl) and its prototype



Based on the Order of MOND, dated May 11, 1923, they established detached Telegraph Workshops which were directly subordinate to the 21st Division of MOND. At the same time, it was decided that the Main Military Telegraph Depot will keep its own Repair Shop. That year, the Workshops produced, beside other things, antenna masts for MOND in Bubeneč. The following year became a milestone in the development of the Telegraph Workshops. Based on the Order of MOND, dated January 22, 1924, they established detached Military Telegraph Workshops. Staff Captain Otto Tomský was appointed their director, Staff Captain Jan Racek - works superintendent and Second Lieutenant Karel Deyl – chief of laboratories.

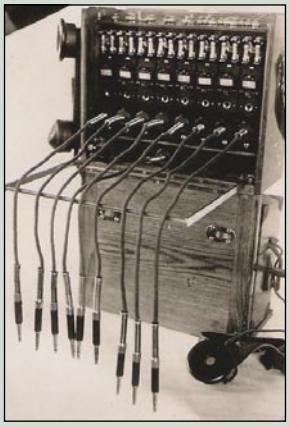
At the same time, they started series production of the Models accepted in the armament of the Czechoslovak Defence Force. Simultaneously, the laboratories prepared new types of divisional and aeronautical radio stations. The Military Telegraph Workshops consisted of directorate, laboratory division, workshop division, technical administration and auxiliary service. Limited production and development areas remained considerable deficiency even

Radio station, Model 23/28

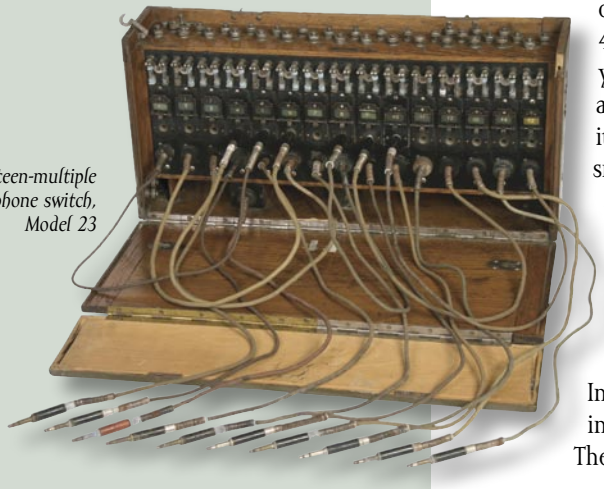


1st production lot of TRD radio station, Model 23

Radio station for President Masaryk



Octuple telephone switchboard



Fifteen-multiple telephone switch, Model 23

then. For this reason, they began to build new factory in Kbely. In 1924, the tables of organisation prescribed 229 employees for Military Telegraph Workshops. This amount was far from being achieved. The last product in the year 1924 was represented by eight-valve radio station, the first of its kind in Czechoslovakia, which was handed over to the President T.G. Masaryk as a New Year present to the Defence Force.

Importance of the Military Telegraph Workshops is proved also by the explanation of Minister of National Defence František Udržal in the Parliamentary Budget Committee in November 1924: *"There are many branches in which we shall have to learn from foreign countries and abroad for a long time. However, there are already many branches in which – thanks to the proficiency of our industry and diligence of the Czech people – we became entirely or at lest in a considerable extent independent. As an example, I can mention the development of Military Telegraph Workshops, the establishment of which provides domestic production of all communication material for military purposes of our Army involving telegraph, telephone and radiotelegraphic material".*

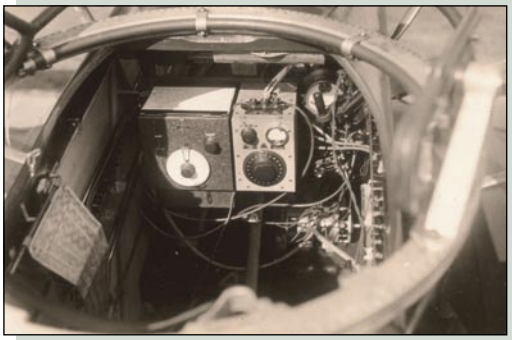
In spring 1925, the Main Telegraph Depot moved to Kutná Hora and the free areas in Pohořelec could be taken over by Military Telegraph Workshops. That year, the workshops delivered to the Army namely 2,000 pieces of Sig.10 light

Gate of Military Telegraph Workshops at Pohořelec

signalling apparatus which were made by reworking the British Lucas type apparatus. Deliveries of field radio stations, A5 four-valve radio receivers for army exchanges, field telephone apparatus and eight-multiple and fifteen-multiple switchboards were also significant. In December 1925, they accomplished a model of six-valve avionics receiver characterized by minimum size and weight of 4.6 kg. At the end of the year, they employed 214 workers. In the following years, the depot took over large amount of various communication materials and, at the same time, it supervised the quality of its production. Among its business partners it could count both the large companies as well as small industrial works. For example: Telegrafia of Pardubice was important supplier of field telephones (only in November 1926 it delivered 1,000 telephones); J. Weigl Company (Přerov) produced telegraph carts, Model 23 and 27 and mobile columbaries; WIKOV Company (Přerov) produced mobile cable winches; Svoboda Company (Horní Cerkev) produced crooksticks for installation of lines and Vichr & Co. (Duchcov) produced telephone cable reels, Models 21 and 23, etc.

In October 1926, the Military Telegraph Workshops moved to new buildings in Kbely. Thanks to that, the production could finally run at full blast. The basis of the Telegraph Workshops consisted in a laboratory division

Telegraph cart, Model 27



RP2 aviation radio receiver

which studied and designed new models of apparatus or upgraded the still used pieces of apparatus and made all the measurements connected with the studying of the problems of the Signal Service. The Workshops themselves had their own design division and telegraph shop, telephone shop, radio telegraph shop, locksmith's and blacksmith's shops as well as foundry, joiner's shop and machine shop. In the course of the year 1926, Military Telegraph Workshops produced 280 trench radio stations, 650 eight-multiple switchboards, 360 fifteen-multiple switchboards, 10,000 pigeon communication capsules, 250 pairs of head receivers and namely 100 pieces of new avionic radio stations, Model 26 consisting of RP2 receiver and RV2 transmitter. The last type developed in the twentieth was represented by radio station, Model 29. The list of the products of Telegraph Workshops includes the pigeon communication capsules. It is the same with the above mentioned table of allocation of other means of communication which involves the columbaries and dogs.

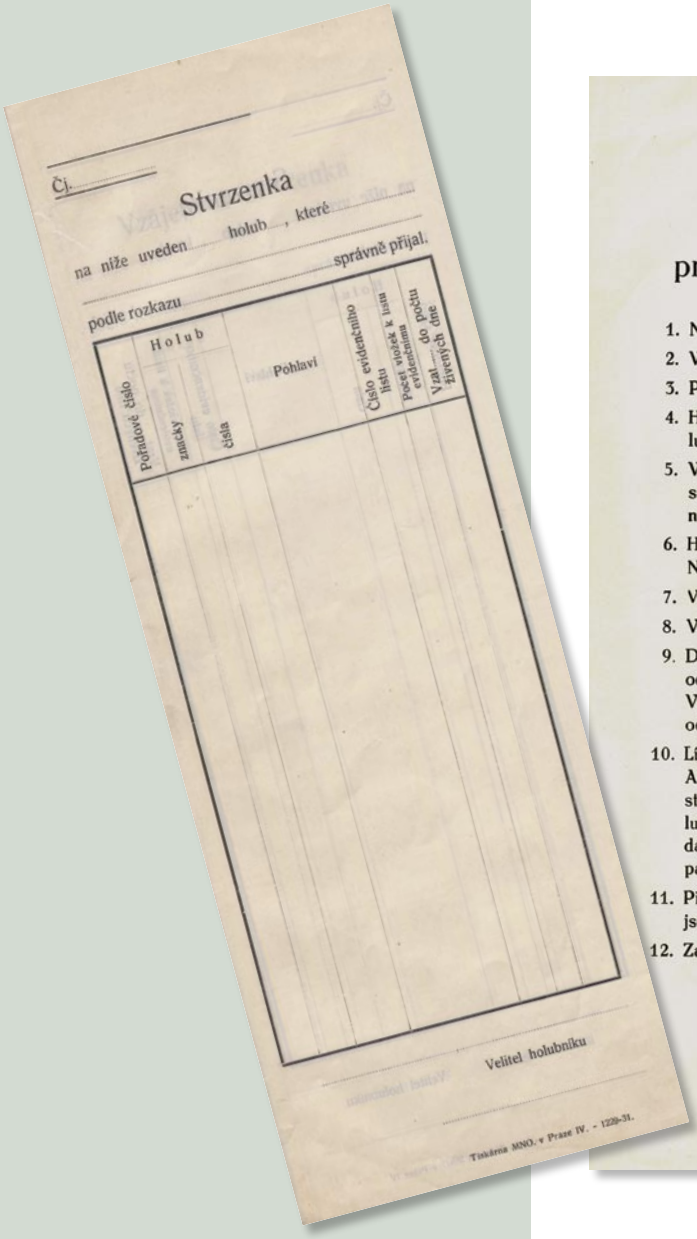
Locality of Military Telegraph Workshops in Kbely

Earth option of aviation radio receiver, Model 26 (RP2, RV2)

Logo of Military Telegraph Workshops

Transportable columbary

The messenger pigeons, as one of the oldest communication means, were used by Czechoslovak Defence Force, too. It was given namely by the experience from World War I where the pigeons very often proved to be useful in the situations when other communication means failed. The speed of the pigeons which reached nearly 150 km/h was also an important factor. At the beginning of the twentieth, the Main Home Columbary was located at Štefanik´s Barracks in Prague. Other two home columbaries were based at the Telegraph Battalion II in Brno and Telegraph Battalion III in Trnava. The Main Home Columbary controlled the breeding of military communication pigeons



Čj. _____

Stvrzenka

na níže uveden holub , které

správně přijal.

podle rozkazu

Holub			Pohlaví	Číslo evidenčního listu	Počet vložek k tomu evidovaných	Vzal ... do počtu živých dne
Pořadové číslo	značky	čísla				

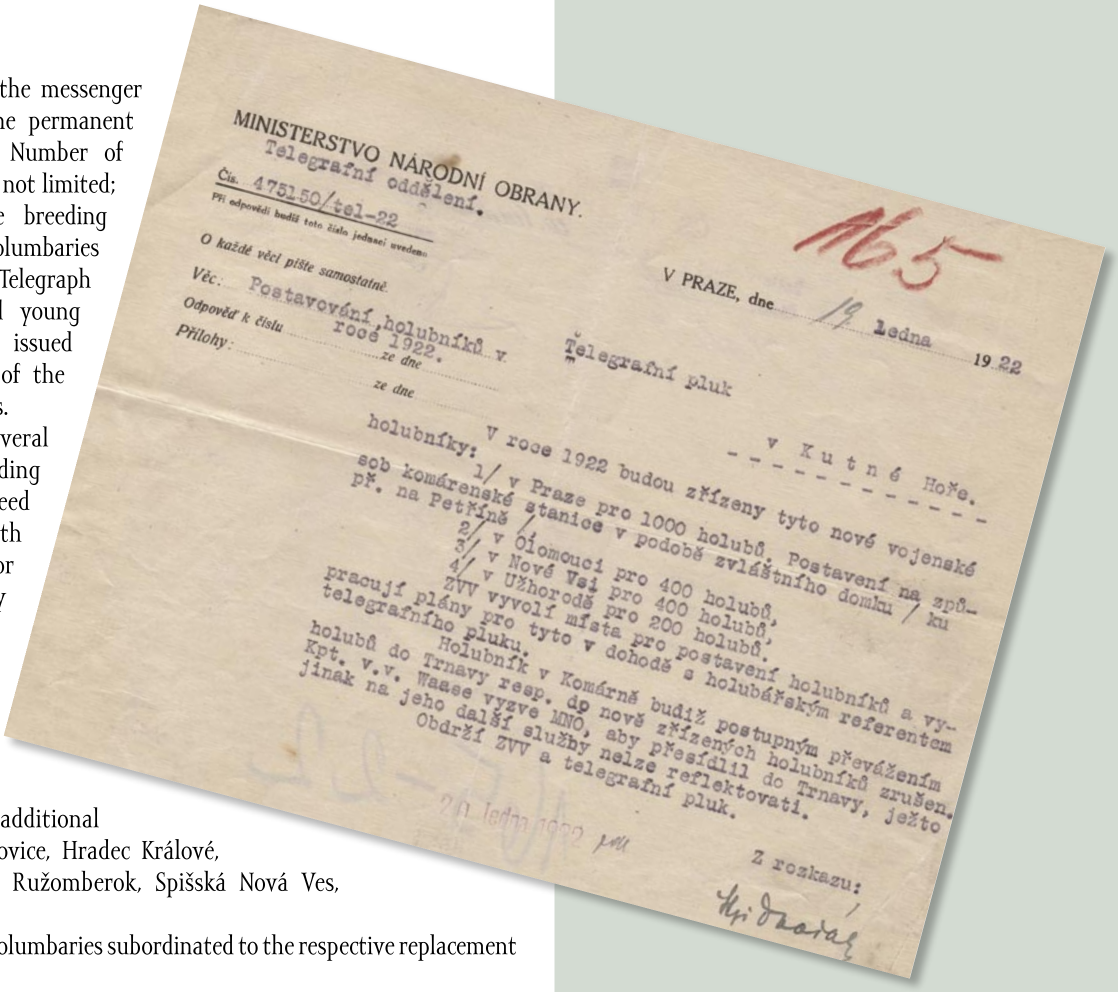
Velitel holubníku

Tiskárna MNO. v Praze IV. - 1228-31.

Poučení

pro zacházení a vypouštění poštovních holubů.

1. Nedávej do ručního koše více než 6 holubů.
2. Ve volné chvíli vypusť holuby pod odpočinkovou síť (je-li po ruce).
3. Při každé příležitosti dej holubům čistou vodu k pití.
4. Holuby vůbec nekrm ten den, kdy chceš je vypustiti a není-li vzdálenost od holubníku větší 30 km. Jinak je nakrm večer.
5. Vypouštěj vždy nejméně 2 hohuby s jednou zprávou a to buď 2 samce neb 2 samice (je-li to možné). Samci jsou označeni zeleným, samice červeným kroužkem na levé noze.
6. Holuby vypouštěj na volném prostranství, nejlépe na návrší s dobrým rozhledem. Nesmí se vypouštěti proti stromům, drátům ald.
7. Vypouštěti můžeš ráno od východu slunce až 1 hod. před západem.
8. V noci za husté mlhy neb za deště holub nelétá.
9. Do bloku vlož 2 lístky indiga a podložku. Tak získáš 2 opisy zprávy již odesíláš, z nichž originál a jeden opis odešli a druhý opis si ponech jako doklad. V záhlaví lístku udej velitelství kam má být zpráva dodána, velitelství které ji odesílá a přesný čas vypuštění holuba.
10. Lístek slož třikráte na délku a pak stoč. Dobře stočený lístek vlož do pouzdra. Aluminiové pásky pouzdra okulař na tužce, roztáhni (ne tedy narovnávat) a jemně stiskni holubu na pravou nožku tak, aby se pouzdro dalo otočiti kol nožky holuba, t. j. aby jej netísnilo, ale aby také pevně drželo. Barevnou stranu pouzdra dávej vždy navrch. Kroužek s číslem nechť zůstane uprostřed mezi dvěma pásky pouzdra.
11. Před vypuštěním prohlédni křídla a ocas holubů. Jsou-li brka slepena, vyčisti je, jsou-li silně poškozená, nevypouštěj takového holuba.
12. Zapůjčený materiál nepoškozený vrať a s holuby svědomitě zacházej.


MINISTERSTVO NÁRODNÍ OBRANY.
Telegrafní oddělení.
Čís. 475150/tel-22
Při odpovědi buďiž toto číslo jednací uvedeno
O každé věci pište samostatně.
Věc: Postavování holubníků v roce 1922.
Odpověď k číslu ze dne
Přílohy: ze dne

V PRAZE, dne 19 ledna 1922

Telegrafní pluk
v Kutné Hoře.

V roce 1922 budou zřízeny tyto nové vojenské holubníky:
1/ v Praze pro 1000 holubů. Postavení na způsob komárenské stanice v podobě zvláštního domku / ku př. na Petříně /
2/ v Olomouci pro 400 holubů,
3/ v Nové Vsi pro 400 holubů,
4/ v Užhorodě pro 200 holubů.
ZVV vyvolí místa pro postavení holubníků a vypracují plány pro tyto v dohodě s holubářským referentem telegrafního pluku.
Holubník v Komárně buďiž postupným převážením holubů do Trnavy resp. do nově zřízených holubníků zrušen. Kpt. v.v. Waase vyzve MNO, aby přesídlil do Trnavy, ježto jinak na jeho další služby nelze reflektovati.
Obdrží ZVV a telegrafní pluk.

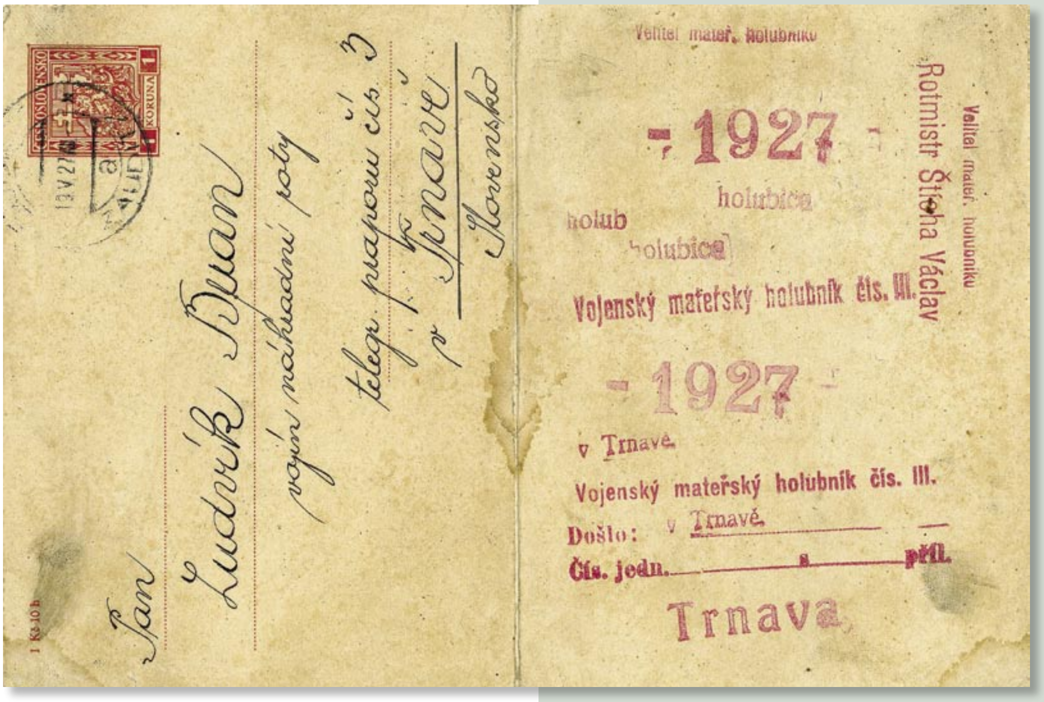
Z rozkazu:

in the whole republic. Training of the messenger pigeons was organized by both the permanent and mobile military columbaries. Number of pigeons in the home columbary was not limited; the permanent columbaries were breeding up to 200 pigeons and mobile columbaries – up to 100 pigeons. In 1921, the Telegraph Regiment had 1,500 pigeons and young doves. In September 1923, MOND issued an Order concerning organisation of the communication by means of pigeons.

Permanent columbaries had several sections. The first section – for breeding of young pigeons, second – for feed box, third – for weaner and the forth section – for sick pigeons. A store for feedstuff and accessories, columbary commander's office and quarters for soldiers-pigeoneers were also part of the permanent columbary.

The mobile columbaries were stationed in Kutná Hora, Milovice, Brno and Trnava. In 1923, they were augmented by additional 10 stations: in Plzeň, České Budějovice, Hradec Králové, Olomouc, Opava, Banská Bystrica, Ružomberok, Spišská Nová Ves, Košice and Uzhgorod.

In total, there were fourteen mobile columbaries subordinated to the respective replacement companies of individual telegraph battalions and they provided communication for twelve divisions and two mountain brigades.



The pigeons of the permanent columbaries were trained for the medium distance (up to 200 km) and long distance (more than 200 km). The mobile columbaries were expected to enable the wartime use of messenger pigeons in a shortest possible time and in the place where the combat situation required. Cipher messages were put into light aluminium capsules fixed to the pigeon's leg. Main supplier of the pigeon communication capsules were Military Telegraph Workshops. The columbaries were connected with command by telephone or by cyclist-messengers to secure delivery of the message carried by pigeon to respective destination as soon as possible. The messenger pigeons provided communication between front units and division command, between Infantry and Artillery and between the messengers and command which dispatched the messengers. Training of personnel was organized each year at Telegraph School or at some home columbary in a four-week-long messenger pigeon communication course. Military Messenger Pigeon Communication School was located in Brno.

In World War II, they used thousands of dogs on all the fronts. Dogs proved useful not only as means of guarding, searching and transportation but also as excellent means

Dog with a message capsule

of communication. On the basis of theses experience, they established Military Dogs Training School in Kostelec nad Orlici. Military exercises proved the capabilities of dogs to perform communication tasks. They conveyed messages between two commands over heavy terrain up to the distance of 10 km in an average speed of 30 km/h.
However, basic way of communication in the twentieth was the line communication. In the years of the First Republic, members of telephone platoons were called "tinkers". It was a fitting nickname because they always very carefully wired each piece of the earth where the military operation took place. When the troops moved against the enemy,

"Tinkers" installing the lines

higher commands were connected by telephone. The telephone was installed on so called communication axis. The part of the network, the meshes of which were created by telephone and telegraph lines built already in peacetime was called permanent national network. It was used for attaching an operational network. The operational network was installed by troops as a network of high-set lines. Forward motion, up to the front line, was represented by battle network. According to their tasks, the networks were divided into headquarters network, artillery network, etc. All of them were installed according to plan of communication elaborated in advance. During the exercises, regiment commander was always connected with all battalion commanders by telephone. The communication was installed by so called construction (station) squad which was a part of signal platoon. The telephone cables were led over the trees to prevent

Maintenance of field telephone cable

Telephone automobile, Model 30

their damage by pedestrians or vehicles. With regard to delicacy of wire communication, other communication means were used at the same time, which guaranteed that the commander would have connection in any case. In 1931, they introduced a special semi-trailer telephone automobile, Model 30 in the armament. It was Škoda 506 with Martin-type semi-trailer furnished with telephone exchange and other communication material.

Aviation flare (rocket) pistol, Model 28

Ericsson receiver
of the first Czechoslovak field telephone apparatus

Okura – Japanese telephone apparatus

Workers of Telegraph Workshops check
the components of TRD station, Model 23

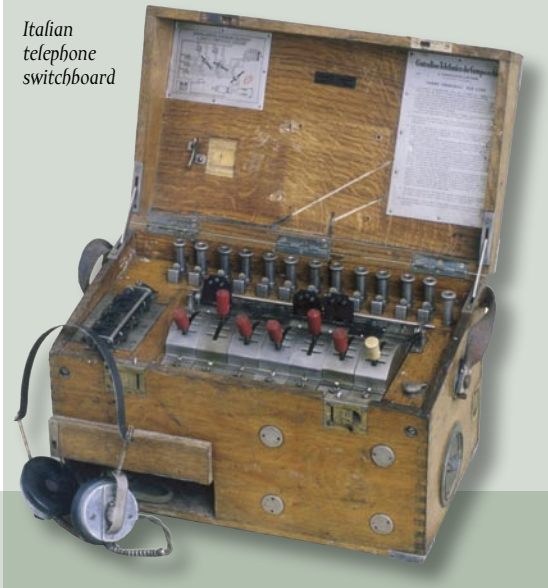
Receiver of the radio station,
Model 23/28

Model identification plate
of radio station, Model 23/28

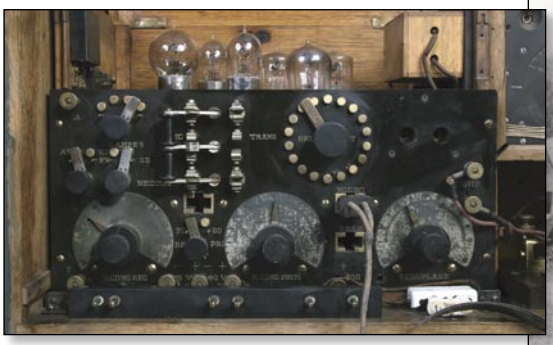
X-01 signal apparatus

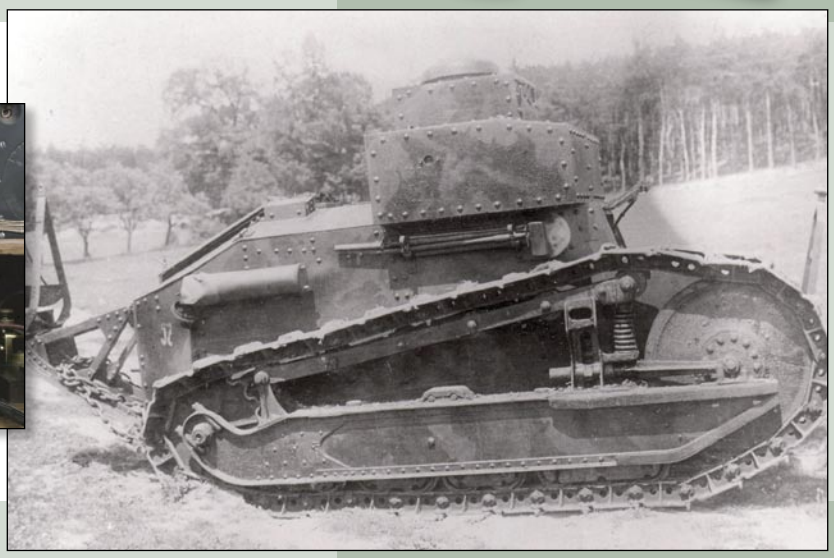
Transport of TRD radio station, Model 23

Aero A-12 airplane with the first RP2 aviation receiver



Italian telephone switchboard





Armament of the Czechoslovak Defence Force included one French Renault FT radio tank equipped with E10 radio station

Hungarian telephone apparatus – Srandard

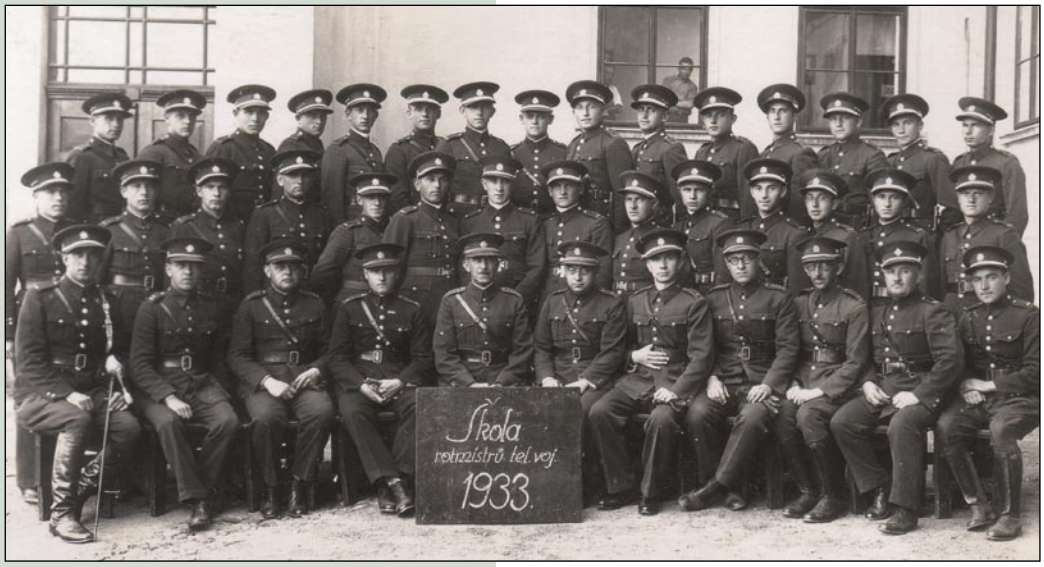
Polish telephone apparatus, Model 27

TELEGRAPH TROOPS ON THE EVE OF WORLD WAR II – THE YEARS 1933–1939

Radio station, Model 29

The Depression which broke up in the U.S.A. in 1929 affected Czechoslovakia at the beginning of the thirtieth and reached its deepest point in the first months of the year 1933. It was of course reflected in the development of Czechoslovak Defence Force. As a result of the reduced estimate items of the national defence budget, some important changes could not be implemented as the general situation required. Implementation of necessary organisational changes and equipment of troops by new combat means was postponed. The end-of-training-cycle exercises and large exercises of troops were limited or they were not held at all. In spite of that, the Telegraph Troops succeeded to introduce a number of new communication means e.g. automobile radio station, Model 29; portable radio station, Model 31 and other equipment even in that period. However, in general, the Telegraph Troops were experiencing stagnation the same as the whole Defence Force. It stagnated in furnishing the troops by modern equipment.

In 1932, in respond to the collapse of disarmament discussions in Geneva, the Main Staff started preparation of an extensive reorganisation and modernisation of Czechoslovak Defence Force. Year 1933 brought a sharp turn when the power in the neighbouring Germany was grasped by Nazis headed by Adolf Hitler. Czechoslovakia rightly felt threatened by new orientation of its foreign policy. Since 1935, we continued in development of a permanent fortification. In May 1935, new organisation of wartime Army became effective. Reorganisation of peacetime Army followed. Necessity to increase the defence capability of the state resulted in the formation of higher units – the Corps. In October 1935, seven Corps Commands were established.



WO School of Telegraph Corps in the year 1933

In September 1933, the Telegraph Corps, which became one of the six army branches of our Defence Force, were made completely independent which was of high importance for further development of the organisation. On September 15, 1933, the number of telegraph battalions grew up to five. The Telegraph Battalion No. 5 was formed in subordination of the Country's Military Command in Prague and based in Týn nad Vltavou. The formation involved also the former Telegraph Companies No. 2 and 5 of the Telegraph Battalion No. 1. The same day, the composition of individual telegraph battalions was changed and their companies were renumbered. According to the new organisation, each telegraph battalion disposed of the 1st Telegraph Company, 2nd and 3rd Telephone Company and 4th Radio Telegraph Company

Within the renumbering, the companies were renamed as follows:

- Telegraph Company 1 to the 1st Company of Telegraph Battalion No. 1;
- Telegraph Company 2 to the 1st Company of Telegraph Battalion No. 5;
- Telegraph Company 3 to the 2nd Company of Telegraph Battalion No. 1;
- Telegraph Company 4 to the 3rd Company of Telegraph Battalion No. 1;
- Telegraph Company 5 to the 2nd Company of Telegraph Battalion No. 5;
- Telegraph Company 6 to the 1st Company of Telegraph Battalion No. 2;
- Telegraph Company 7 to the 2nd Company of Telegraph Battalion No. 2;
- Telegraph Company 8 to the 3rd Company of Telegraph Battalion No. 2;
- Telegraph Company 9 to the 1st Company of Telegraph Battalion No. 3;
- Telegraph Company 10 to the 2nd Company of Telegraph Battalion No. 3;
- Telegraph Company 11 to the 2nd Company of Telegraph Battalion No. 4;
- Telegraph Company 12 to the 1st Company of Telegraph Battalion No. 4;
- Radio Telegraph Company 1 to the 4th Company of Telegraph Battalion No. 1;
- Radio Telegraph Company 2 to the 4th Company of Telegraph BattalionNo. 2;
- Radio Telegraph Company 3 to the 4th Company of Telegraph Battalion No. 3;
- Radio Telegraph Company 4 to the 4th Company of Telegraph Battalion No. 4;

Thanks to introduction of the two-year compulsory military service, additional two telegraph battalions were formed on October 1, 1935. It was Telegraph Battalion No. 6, based in Brno and subordinated to the Country's Military Command in Brno and Telegraph Battalion No. 7, stationed in Turčianský Sv. Martin and subordinated to the Country's Military Command in Bratislava.

Formation of the new units of the Telegraph Corps was connected with the above mentioned reorganisation of higher commands of the Czechoslovak Defence Force. Territory of the Republic was divided into seven Corps Regions. Since October 15, 1935, they were headed by the Corps Commands. Command of Corps I was based in Prague, Corps II – in Hradec Králové, Corps III – in Brno, Corps IV – in Olomouc, Corps V – in Trenčín, Corps VI – in Košice and Corps VII – in Turčianský Sv. Martin (since September 1936 – in Bratislava and since September 1938 – in Banská Bystrica). In January 1937, the telegraph battalions were transferred to subordination of the Corps Commands. Telegraph Battalion No. 5 (Benešov) was subordinate to the Command of Corps I (in September 1936, it moved from Týn nad Vltavou); Telegraph Battalion No. 1 (Kutná Hora) was subordinate to the Command of Corps II ; Telegraph Battalion No. 2 (Brno) was subordinate to the Command of Corps III; Telegraph Battalion No. 6 (Brno, since September 1937 – Lipník nad Bečvou) was subordinate to the Command of Corps IV ; Telegraph Battalion No. 3 (Trnava, since September 1938 – Nové Mesto nad Váhom) was subordinate to the Command of Corps V ; Telegraph Battalion No. 4 (Prešov) was subordinate to the Command of Corps VI and Telegraph Battalion No. 7 (Turčianský Sv. Martin) was subordinate to the Command of Corps VII.

Field jacket, Model 21
of a telephonist of field engineer regiment

Banner of Telegraph Battalion No. 1 in Kutná Hora

Banner of Telegraph Battalion No. 2 in Brno

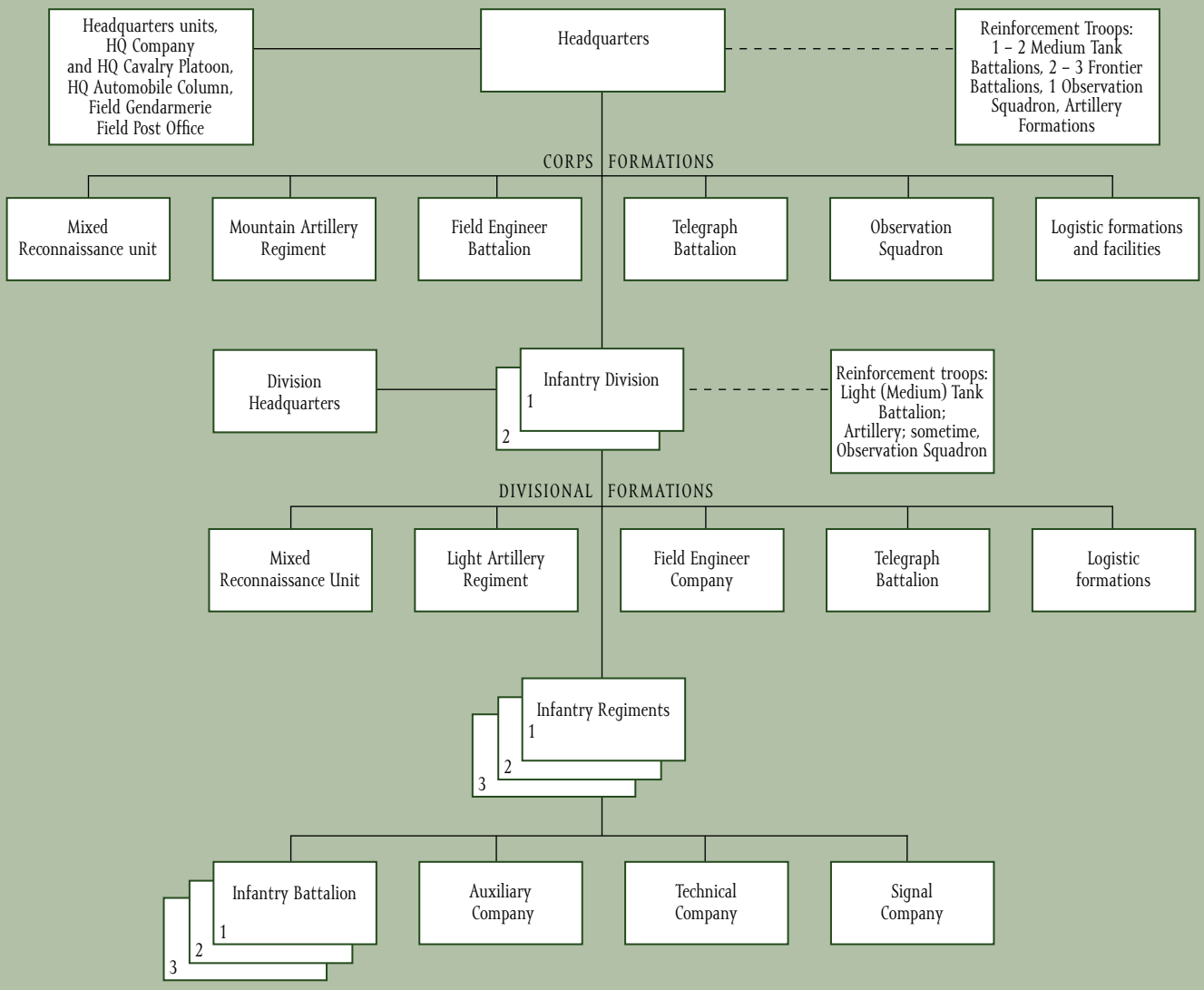
Banner of Telegraph Battalion No. 3 in Trnava

Members of a telephone company of Telegraph Battalion No. 5

In two phases, the telegraph battalions were enlarged by one company. As of October 1, 1935, one telephone company was attached to the Telegraph Battalions No. 1 and 5; on August 1, 1, 1937, one telephone company was attached to the Telegraph Battalions No. 2, 3, 6, and 7. Only the Telegraph Battalion No. 4 was not attached any telephone company. On October 1, 1935, Telegraph Battalion No. 6 established a monitoring company but it was disbanded on August 1, 1937. Since August 1, 1937, they stopped discern between telegraph and telephone companies and from then on all of them were marked as telegraph companies.

In accordance with the directives issued by the Main Command in 1935, the training organisation of troops was set as follows:

Training organisational chart of Army Corps



In the second half of the thirtieth, the radio telegraph network experienced considerable development. It is typical that the development of the network began only after its comparison with the much more developed state in the neighbouring countries. Requirement to develop a complete network was put several years after such network was built in Germany, Austria and Hungary. Austria and Germany followed the principle that each garrison should have at least one radio station. In Czechoslovakia, the military radio telegraph network operated for the case of mobilisation since the beginning of the twentieth. Replacement companies of the telegraph battalions disposed of several permanent and practice radio telegraph stations creating a basis of radio telegraph network of the Telegraph Corps. The whole network was controlled by the Main Radio Telegraph Station at Petřín in Prague. In total, 17 stations provided military telegraph communication and practical training of wireless operators. However, in the thirtieth, the necessity to solve the questions of radio telegraph network became urgent.

Radio station operators

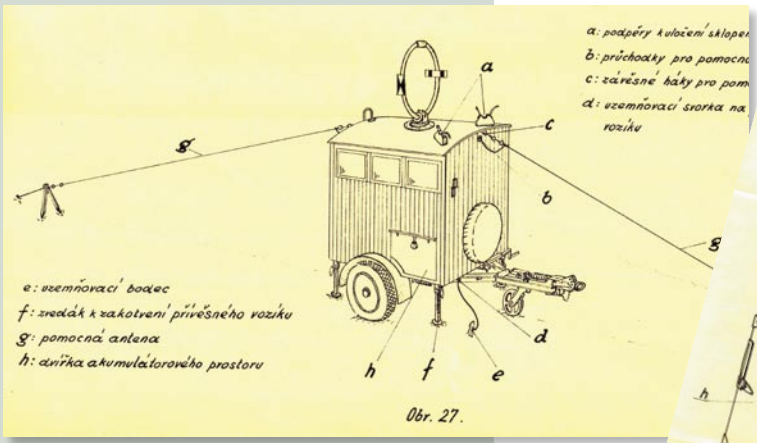
On October 1, 1935, they established Military Radio-Electric Centre at Petřín in Prague. It was directly subordinate to the 2nd (Telegraph) Division of the MOND Department IV. All the permanent and practice radio stations were subordinate to the centre. The radio telegraph network included Military Radio-Electric Centres I to III, representing a powerful body intended to cover communication needs of MOND and to control radio-electric transport. These centres were located in Prague, Kroměříž and Turčianský Sv. Martin. The centre based in Prague disposed of 10kW Telefunken transmitter. The permanent radio-electric stations in the seats of the Country's Military Commands were changed to the Centres of Permanent Radio Telegraph Stations No. 1 to 4. Each of the centres based in Prague, Bratislava and Košice had one radio station, Model 29 and Telefunken 0.5kW transmitter; the centre based in Brno disposed of only one French E-3 radio station. The centres had also five RV8 short-wave transmitters. One of them was experimentally located at Military Radio-Electric Centre III in Turčianský Sv. Martin. The Centres of Permanent Radio Telegraph Stations were equipped with 14 (since March 1938 – 18) permanent radio telegraph stations which formed the basis of the whole telegraph network. They were located in the seats of divisions and the two mountain brigades. The network of permanent radio telegraph stations was completed by about 40 garrison stations. Radio intercept and direction finding was executed by Practice Radio Telegraph Stations I to IX subordinate to Practice Radio Telegraph Station Centre in Prague. In connection with the origin of Corps Commands and other organisational

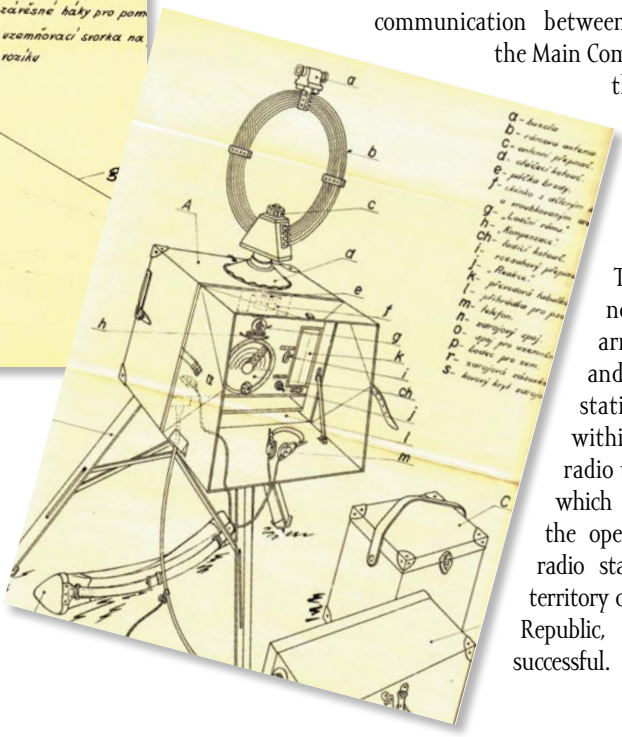
Receiver set of RV3 radio station, Model 29

President Beneš viewing the RP5 finding receiver, production lot II, mounted on a special trailer during his visit to Military Telegraph Workshops

changes, the network was gradually extended. Till the year 1938, the radio telegraph network was successfully developed to the shape which proved to be fully functional in the course of mobilisation.

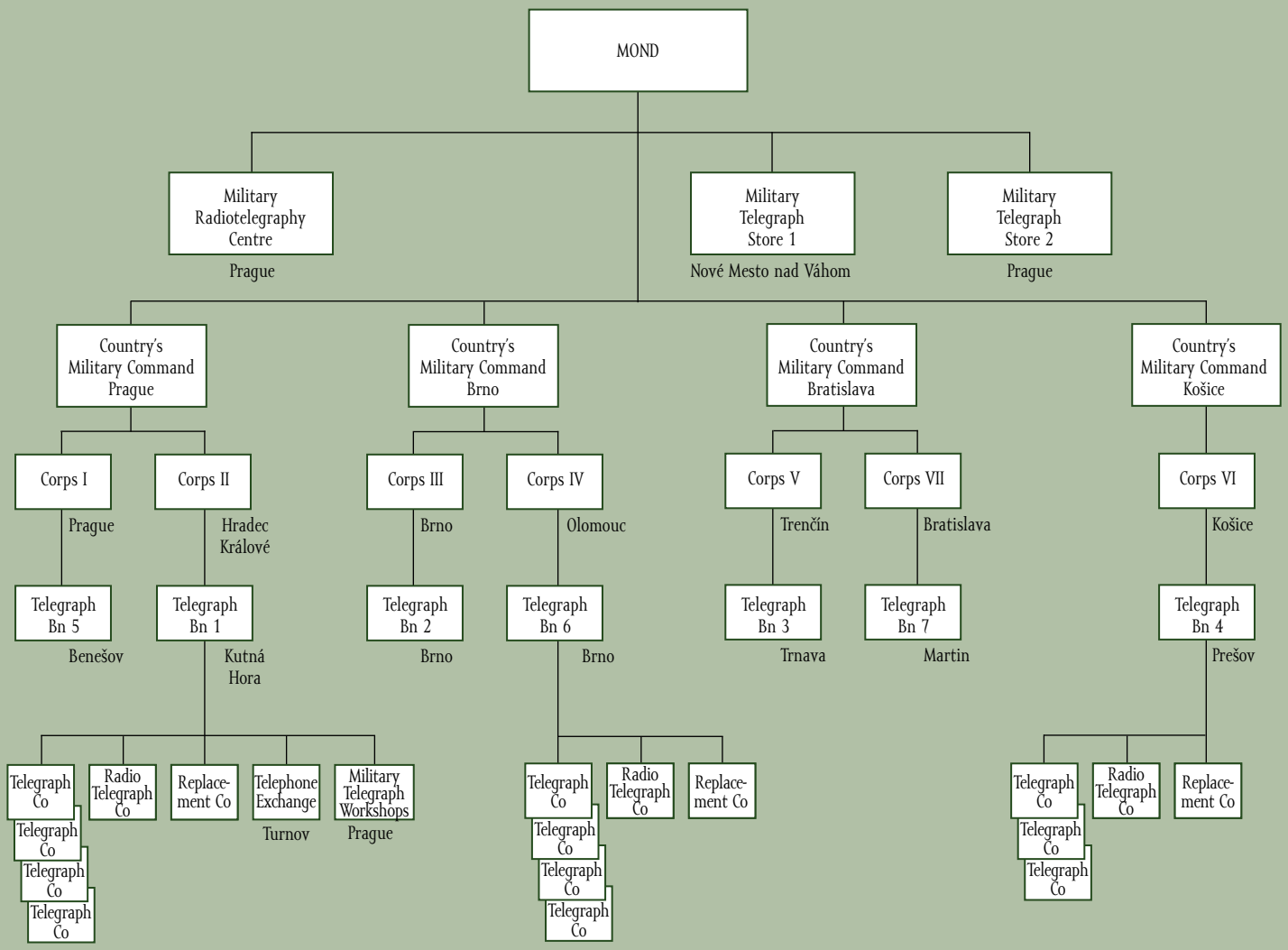
During the whole time of the Czechoslovak Republic's existence, Ministry of National Defence was fighting with Ministry of Post and Telegraph for the competency concerning issuing concession and control over the radio communications. In spite of the facts that the technical equipment enabling monitoring of the transmission of illegal radio stations was in hands of the Ministry of National Defence, the Ministry of Post and Telegraph became winner of the competence disputes. Imperfection of both the civilian and military direction finding receivers was proved in 1934, when German emigrant Formis, M.Sc., started an illegal anti-Nazi transmission from the restaurant Na Záhoří by Slapy. Fruitless effort of the Czech institutions to find the transmitter ended only after killing the Formis by German commando. With regard to the response to this case, they established a specialized workplace – Radio Technical Control Service in the middle of the thirtieth. It was to search for illegal radio stations. The main monitoring workplace was installed in a villa in Prague – Krč. Its crew consisted of eight radio operators and two mechanics. The service disposed of two Škoda Rapid vehicles equipped with communication receivers and home-made direction finding loops. Gradually, they established the services in Brno and Košice. It is a paradox that the only discovered station at the beginning of the year 1937 was the agency radio station of the advanced agency centre of the 2nd Division of the Main Command providing the communication between Litoměřice and the Main Command. Activity of the Radio-Electric Control Service culminated in the period of mobilisation in September 1938. The well equipped network of the army monitoring and direction finding stations, operating within the practice radio telegraph stations which monitored namely the operation of military radio stations out of the territory of the Czechoslovak Republic, was much more successful.





RP21 finding receiver

Organisational chart of Telegraph Corps – August 1, 1937



Remarks: Organisation of Telegraph Bn 2, 3, 5 and 7 is identical with the organisation of Telegraph Bn 6

As a result of all the mentioned changes, the total strength of the troops was substantially increased. The growth of manpower and NCOs was achieved by the increased number of the accepted conscripts, numerical growth of officers and WOs achieved by an accelerated retraining of the members of other army branches, namely Cavalry. The substantial changes in the Army structure, introduction of new combat equipment and the changes in the system of command necessarily required the change of the existing communication system. The Army as a whole experienced nearly permanent reorganisation in that period. Each reorganisation directly related to the Telegraph Corps because the newly established units had to be equipped by communication means and personnel. The regulations titled "Liaison and Communication" issued in 1924 were helplessly obsolete. In 1935, they issued new regulations, which put much higher stress on radio communication. It also corresponded with the use of communication means at the subsequent large exercises where they used as many as 150 radio stations at the same time and with finding the possibilities of detection of the enemy radio stations and monitoring of its radio operation. Based on the achieved knowledge, it was decided that

Banner of Military Telegraph School in Turnov

Exercise HQ with a telegraph station

the radio communication will be substantially enlarged.

Development of aviation was accompanied by the need to develop an air system of radio telegraph stations covering the whole republic. For this reason, on March 1, 1935, they established an Air Radio-Electric Centre based in Prague-Kbely. From the specialisation viewpoint, it was subordinate to Military Radio-Electric Centre and in other cases, to the 3rd (Aviation) Department of MOND. Since September 1, 1935, under its professional direction and coordination, they gradually established 22 air radio telegraph stations subordinate to the commands of individual air wings.

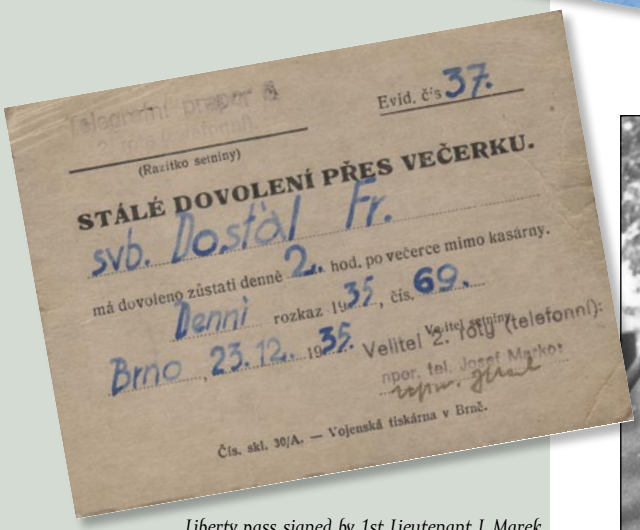
In 1938, they issued a reworked manual titled "Training Instructions for Air Army Radio-Electric Network" which set the principles of organisation and operation of radio communication within the Air Force.

The communication system of tank and mechanized divisions, formations and units, mixed reconnaissance groups and mountain and frontier battalions planned to introduce the radio communication to the level of company and, in some cases, to the level of platoon leader.

It was the same with artillery which installed the radio communication of battalion commander with the commanders of batteries.

Interesting information refers to the nationality-related composition of the Telegraph Corps

Aviator's helmet, Model 35



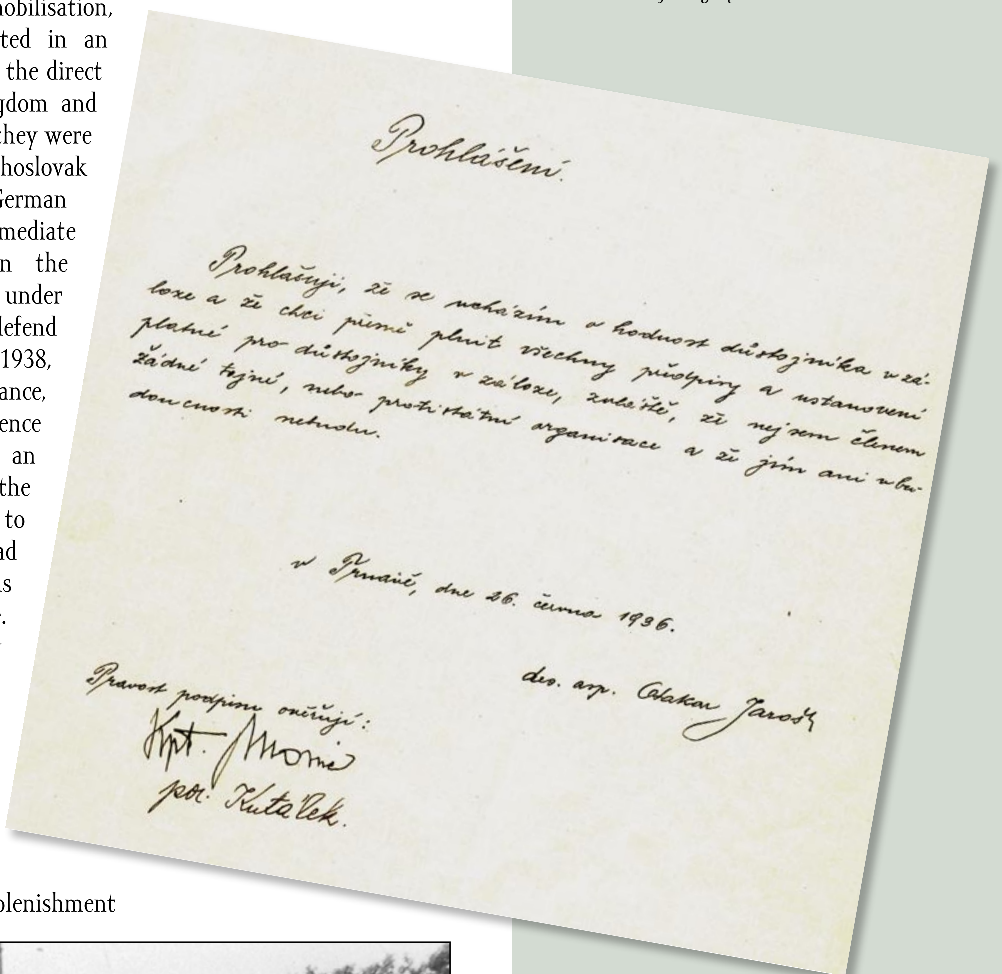
Liberty pass signed by 1st Lieutenant J. Marek, later commander of the Signal Corps

Radio station, Model 35, for communication with tanks

in the middle of the thirtieth. For a comparison, in brackets, you can see the numbers concerning total defence force. The Telegraph Troops had 96.6% (86.4%) officers of Slavonic nationality, 3% (11.8%) officers of German nationality and 0.4% (1.8%) officers of Hungarian nationality. Other ranks were 96.5 (74.4%) of Slavonic nationality, 3% (19.4%) of German nationality and 0.5% (6.2%) of Hungarian nationality. The numbers prove the maximum effort to prevent the danger of infiltration of the agents hostile to our state to the Telegraph Corps.

In November 1937, Adolf Hitler announced his intention to attach Austria and Czechoslovakia to the German Empire. In case of Czechoslovakia, he planned to implement this plan by making use of the requirements of German minority in the Czech countries. In May 1938, when Czechoslovak Government declared partial mobilisation, the constantly growing claims resulted in an international political crisis. After that, the direct allies of Czechoslovakia – United Kingdom and France – being afraid of war for which they were not prepared, exerted pressure on Czechoslovak Government to make it to bow to the German claims. On September 23, 1938, the immediate threat to the country resulted in the mobilisation which passed quickly and under general enthusiasm and resolve to defend the motherland. On September 29, 1938, four powers (United Kingdom, France, Germany and Italy) summoned a conference to Munich. Its representatives signed an agreement dictating to surrender the border land of the Czech countries to Germany. On September 30, 1938, instead of an order to combat, our politicians decided to abide by the Munich dictate. Political decision concerning abiding by the Munich dictate seriously influenced the conscience of each Czechoslovak soldier and Defence Force as a whole. In the moment of the mobilisation, when 1,075,000 men step in to arms, the planned development of the Defence Force was not yet accomplished. New plans of replenishment

Service cap of the Lieutenant of Telegraph Corps Otakar Jaroš, the member of Telegraph Battalion No. 4 in Prešov



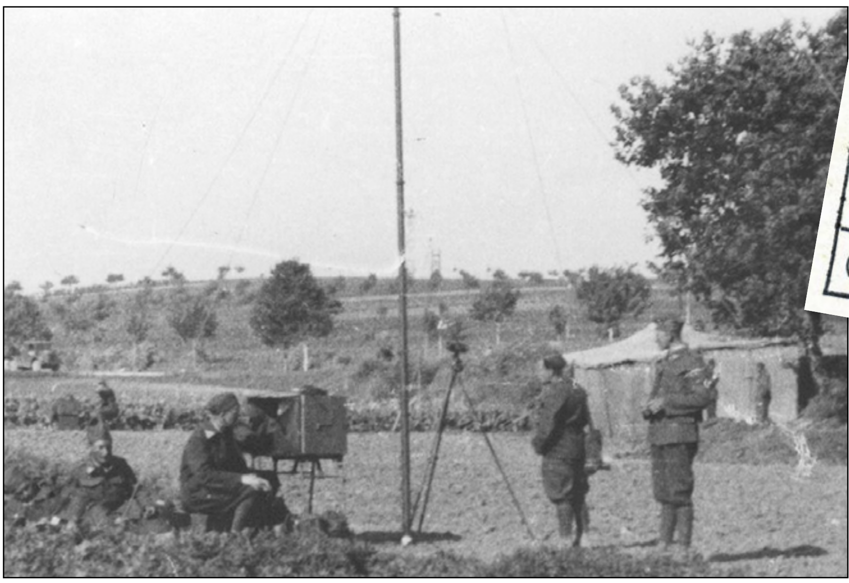
Prohlášení.

Prohlašuji, že se ucházím o hodnost důstojníka v záloze a že chci přesně plnit všechny povinnosti a ustanovení platné pro důstojníky v záloze, zároveň, že nejsem členem žádné tajné, nebo protistátní organisace a že jím ani v budoucnosti nebudu.

v Trnavě, dne 26. června 1936.

des. asp. Otakar Jaroš

Pravost podpisu ověřuji:
Kpt. [illegible]
por. Kutálek



Radio station, Model 35, in the period of mobilisation in September 1938

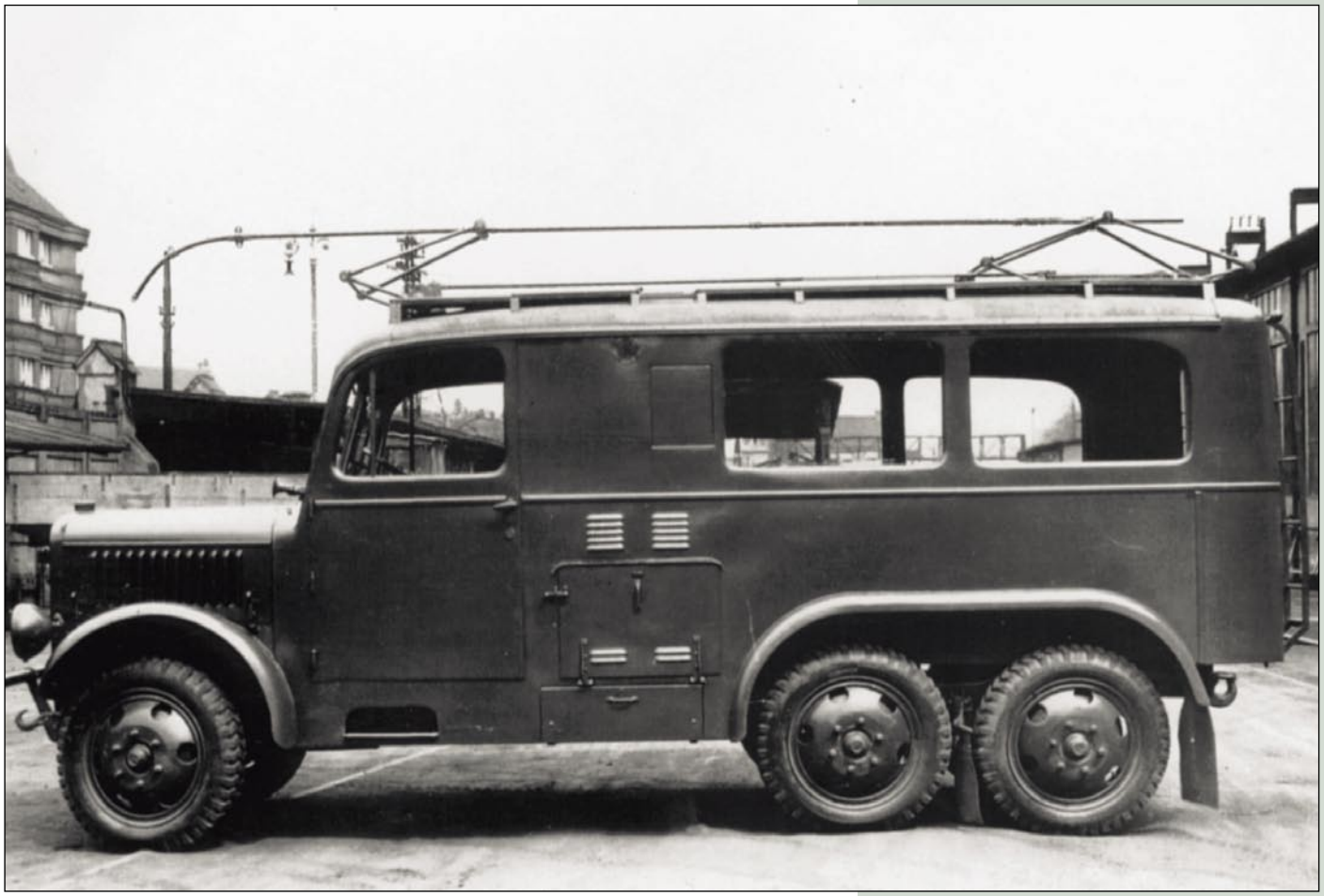
Signalling by X-01 apparatus

of the strength at Telegraph Corps as well as completion of the communication equipment could not be implemented under these conditions. In the course of the mobilisation, the Czechoslovak Defence Force consisted of Field Army under the command of the newly established Main Command (code name – Palacký) and the Western Army subordinate to Ministry of National Defence and the Main Staff. In the course of mobilisation, Brig. General František Kuník became the Chief of the 2nd (Telegraph) Division of the MOND Department IV. The existing chief of the division Brig. General Josef Dvořák hold an appointment of the Commander of Telegraph Corps within the Main Command. Telegraph Corps Headquarters was located in the school nearby castle in Račice, the seat of the Commander-in-Chief, Army General Ludvík Krejčí.

In the course of the mobilisation, the Telegraph Corps formed 57 telegraph battalions attached to the Main Command (Telegraph Battalion No. 91), Army Commands (Telegraph Battalions No. 71 to 74), corps (Telegraph Battalions No. 51 to 58), divisions (Telegraph Battalions No. 2 to 22), borders (Telegraph Battalions No. 61 to 66), frontier areas (Telegraph Battalions No. 31 to 42), mobile divisions (Telegraph Battalion No. 81 to 84) and groups (Telegraph Battalion No. 1). Detached Telegraph Companies were also established and they were at disposal of the Main Command.

Assessment of the September mobilisation, elaborated at the beginning of the year 1939, dealt namely with the readiness of material. It did not concern only the telegraph material but also motor vehicles, the shortage of which represented especially delicate problem at the Telegraph Corps. In most cases, they were not delivered in complete amount. In some cases, 50% of the vehicles were missing. In case when the prescribed number was observed, it was their carrying capacity which was not in good order or the vehicles were not reliable.

Shortage of the off road radio vans was also considerable. Praga RVR equipped with the radio stations, Model 29, was one of these types. On the basis of the experience from mobilisation, they suggested introduction of short-wave stations.



Praga RVR radio van and prototype of the transmitter of RV3 radio station, Model 29

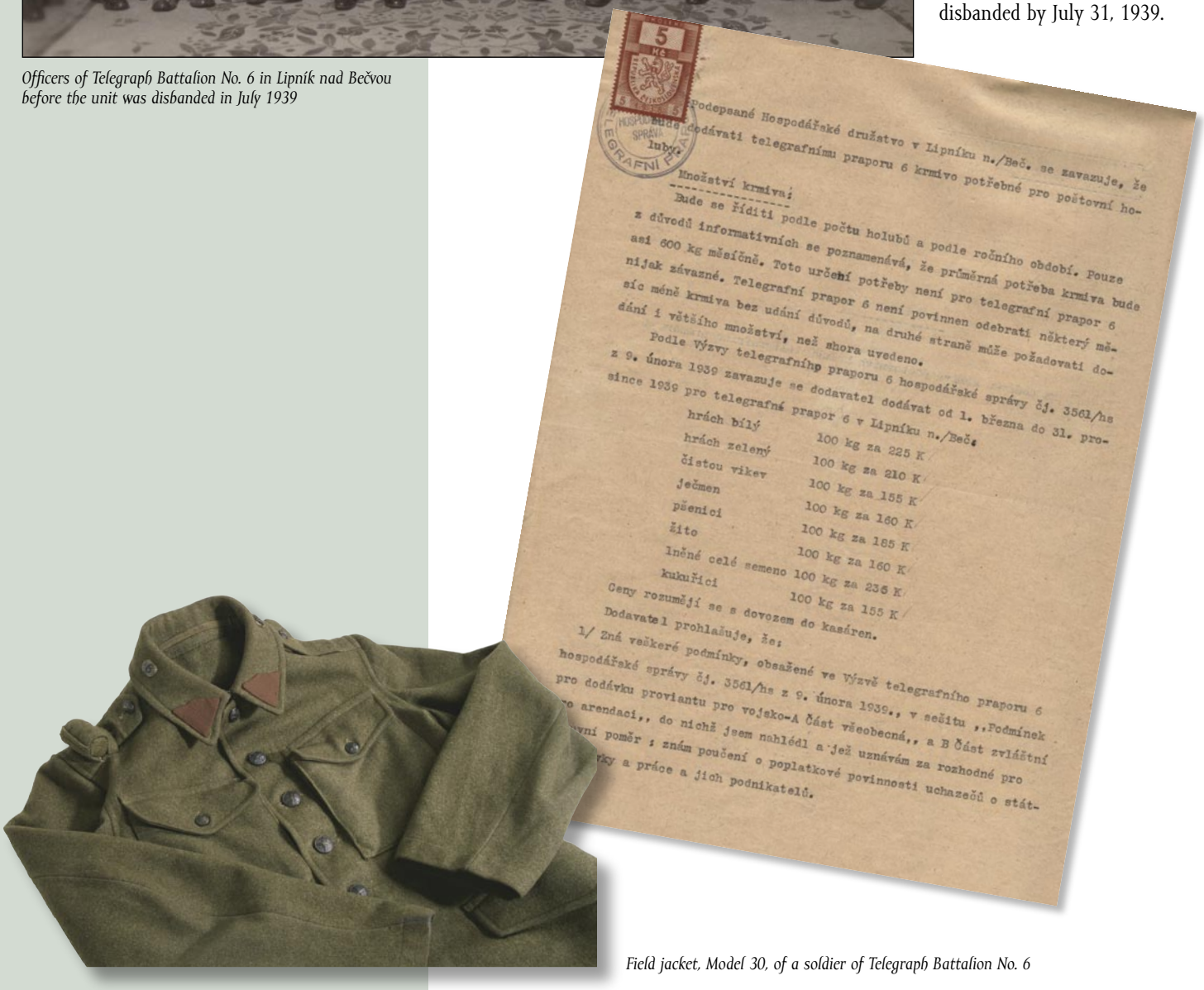
Unlike the mentioned problems, the quality and amount of telephone material was assessed positively. On the contrary again, the units were lacking for the planned radio telephone stations and they also criticized the failure rate of the telegraphs of Hughes type.
Cumulating of functions in the hands of commanders of Telegraph Corps at division and corps level proved to be further problem in practice. According to regulations, the commander of Telegraph Corps of a higher command was MOB-9 and at the same time, commander of the telegraph battalion, and commander of Field Postal Service and chief of Signal Service. This cumulating of function by one officer was univocally criticized in the mobilisation assessment. One officer was not able to manage all these tasks because he had to be at the headquarters of higher unit all the time and therefore, he could not manage his telegraph battalion, which was often located at a distant place. Further negative phenomenon was represented by high number of the mobilised units that formed peacetime telegraph battalions. There were 50 mobilised formations, which resulted in staffing the lower-level command posts by inexperienced officers. For example, Telegraph Battalion No. 5 formed 10 telegraph battalions, 6 detached companies, 18 smaller formations and columbaries, 11 field post divisions, 1 sorting stations and 5 telegraph parks during the mobilisation.

On one hand, the assessment of use of the permanent post office networks during mobilisation positively evaluated the cooperation with civil post office administration meeting the requirements of the troops. On the other hand, it discovered a number of problems with unreliable post office personnel, namely in frontier areas. It proved to be a failure that the Defence Force did not exert its authority at the development of the permanent national telegraph and telephone network.

The mobilisation proved that the short existence of the reorganised Telegraph Corps was not able to fill the gap which occurred namely in the personnel and material provision during the years. However, generally, it can be stated that the field communication, organised by telegraph battalions and signal units of individual army branches were able to provide the control of troops in harmony with the principles of combat activity in force.

On March 15, 1939, Germany occupied the rest of the Czech lands and, one day later, it declared Protectorate of Bohemia and Moravia. Independent Slovak Republic was established and Sub-Carpathian Ukraine and part of Slovakia were occupied by Hungary. After the occupation, all the formations of the Telegraph Corps were disbanded by July 31, 1939.

Officers of Telegraph Battalion No. 6 in Lipník nad Bečvou before the unit was disbanded in July 1939



Podepsané Hospodářské družstvo v Lipníku n./Beč. se zavazuje, že dodávati telegrafnímu praporu 6 krmivo potřebné pro poštovní holuby.

Množství krmiva:

Bude se říditi podle počtu holubů a podle ročního období. Pouze z důvodů informativních se poznamenává, že průměrná potřeba krmiva bude asi 600 kg měsíčně. Toto určení potřeby není pro telegrafní prapor 6 nijak závazné. Telegrafní prapor 6 není povinnen odebrati některý měsíc méně krmiva bez udání důvodů, na druhé straně může požadovati dodání i většího množství, než shora uvedeno.

Podle Výzvy telegrafního praporu 6 hospodářské správy čj. 356l/hs z 9. února 1939 zavazuje se dodavatel dodávat od 1. března do 31. prosince 1939 pro telegrafní prapor 6 v Lipníku n./Beč.:

hrách bílý	100 kg za 225 K
hrách zelený	100 kg za 210 K
čistou vikev	100 kg za 155 K
ječmen	100 kg za 160 K
pšenici	100 kg za 165 K
žito	100 kg za 160 K
lněné celé semeno	100 kg za 236 K
kukuřici	100 kg za 155 K

Ceny rozumějí se s dovozem do kasáren.

Dodavatel prohlašuje, že:

1/ Zná veškeré podmínky, obsažené ve Výzvě telegrafního praporu 6 hospodářské správy čj. 356l/hs z 9. února 1939., v sečitu „Podmínek pro dodávku proviantu pro vojsko-A Část všeobecná„ a B Část zvláštní ro arendaci„ do nichž jsem nahlédl a jež uznávám za rozhodné pro vní poměr ; znám poučení o poplatkové povinnosti uchazečů o stát- vky a práce a jich podnikatelů.

Field jacket, Model 30, of a soldier of Telegraph Battalion No. 6

COMMUNICATION EQUIPMENT IN THE YEARS 1933–1939

In the second half of the thirtieth, the Telegraph Corps managed to remove many defects and was ready to satisfy the requirements put on communication. The oncoming threat of attack from the side of Germany forced the solution of the necessity to form special units for the defence of state border. Preparations for the formation of the units providing communication in the defence system of the Czechoslovak border region were going on simultaneously.

Establishment of the Corps Commands affected the formation of Signal Service of the Telegraph Corps. Existing Main Military Telegraph Depot which operated in Nové Mesto nad Váhom since May 1, 1935 was renamed to Military Telegraph Store No. 1 on January 1, 1937 (This name is mentioned sometime one year earlier). The same day, they established Military Telegraph Store No. 2 in Prague, on the basis of the store of Telegraph Battalion No. 1. The two stores were directly subordinate to the 2nd (Telegraph) Division of the MOND Department IV. The telegraph stores of the country's military commands were disbanded as of January 1, 1937. Military Telegraph Store No. 1 provided communication service for the telegraph units of the Corps IV, V, VI and VII; Military Telegraph Store No. 2 provided the service for the units of the Corps I, II and III. On February 26, 1938 the stores were renamed into Telegraph Store No. 1 and Telegraph Store No. 2. After occupation of the Czechoslovak frontier area, all the communication material from the frontier fortifications was stored in the Telegraph Store No. 2 in Prague-Kbely

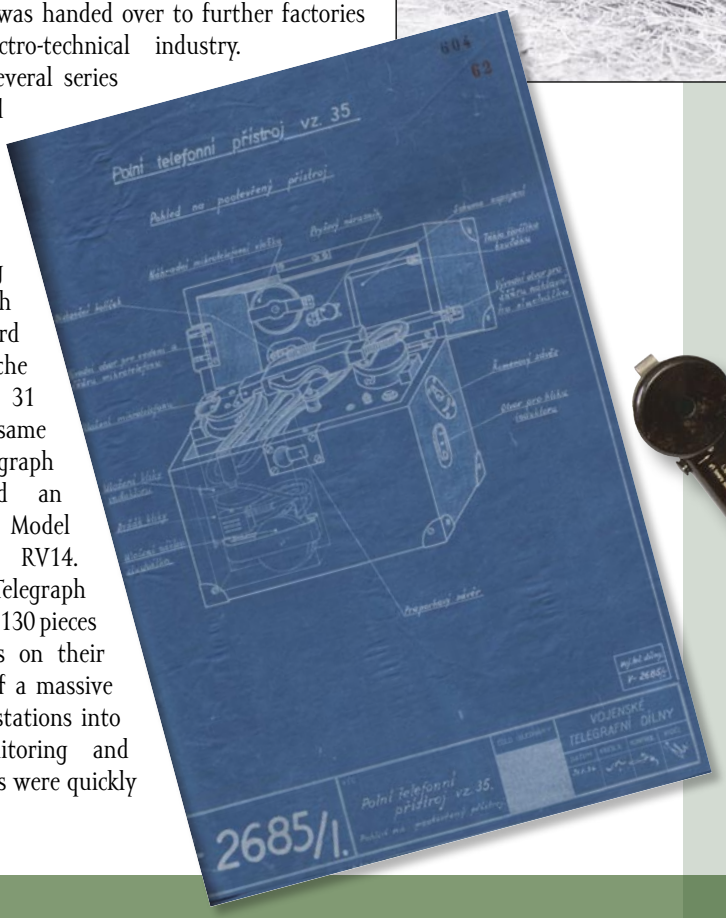
Year 1935 became an important milestone in the development of Czechoslovak radio telegraph industry. Till that time, the army suppliers, including Military Telegraph Workshops, produced the series of several hundred pieces only (up to 1,000 pieces at maximum), necessary namely for training. In 1935, the producers started production with "Y" programme which tried to furnish the Army by most complete communication equipment by assembling thousand up to ten thousand pieces series.

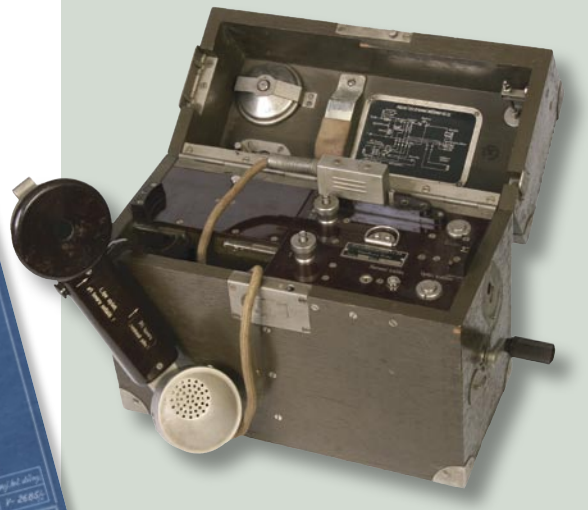
In 1935, a new product of Military Telegraph Workshop, modern telephone apparatus Model 35, was introduced into armament. With regard to the need of large number of pieces, its production was handed over to further factories of Czechoslovak electro-technical industry.

The production had several series and was accomplished in the total number of 33,000 pieces.

However, namely the deliveries of radio stations were growing fast; it included both the Model 29 of the third production series and the new stations, Model 31 and Model 36. At the same time, the Military Telegraph Workshops developed an aviation radio station, Model 35, marked also as RV14. In 1937, the Military Telegraph Workshops had already 130 pieces of different apparatus on their account. As a result of a massive introduction of radio stations into German Army, monitoring and direction finding means were quickly delivered to our units.

Field telephone apparatus, Model 35





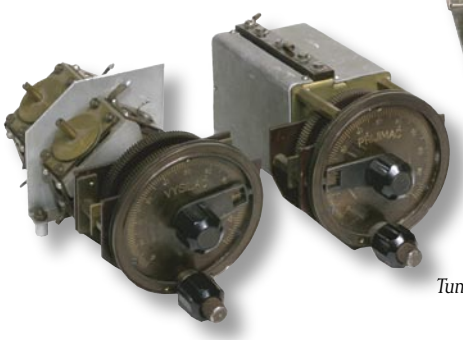
RV14 aviation transmitter, production lot I, designed for bombers

Production of Military Telegraph Workshops contributed to unification of communication material used by Czechoslovak Defence Force in substantial way. In addition to the deliveries of the widespread field telephones, Model 35, the civilian companies participated namely in equipping the Ministry and Country's Military Commands, formations, depots and hospitals by permanent communication centres and establishing of communication networks between buildings. It referred namely Microphona Company (deliveries in the amount of 2,168,651 CZK), Telegrafia (646,831 CZK), Radioelektra (108,606 CZK), Kroel (65, 557 CZK) Antonín Loukotka (32, 861 ZKK, Prchal, Ericsson (23, 242 CZK), Standart Elektric Doms (22, 623 CZK), Radioslavia (18,000 CZK) and Bří. Prchalové (13,791 CZK). Designers of the Czechoslovak system of the fortress, being developed since the middle of the thirtieth, did not underestimate importance of the communication. It was planned that the communication between individual heavy objects would be provided by underground telephone cables and earth telegraphy. Telephone cables were laid in the distance of about 4km from the fortress line, in the depth of 2 to 3 m. They were placed in a cable trench in waves to resist the motion of earth during explosion

President Beneš viewing the radio station, Model 31, during his visit to Military Telegraph Workshops

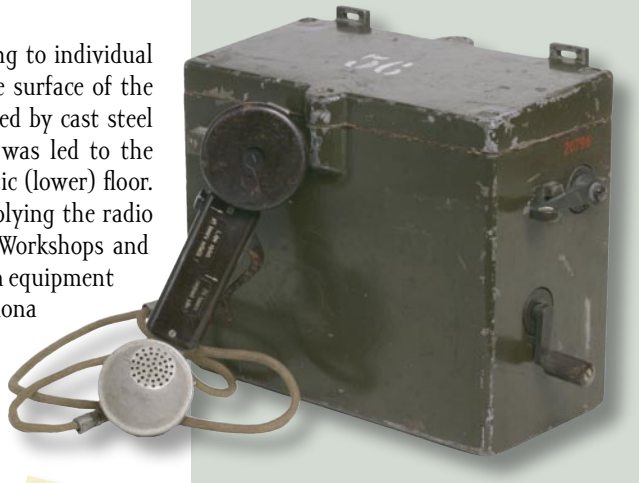
Radio station, Model 36 (RV15, P26), production lot II

Radio station, Model 31 (RV12, RP24), production lot I



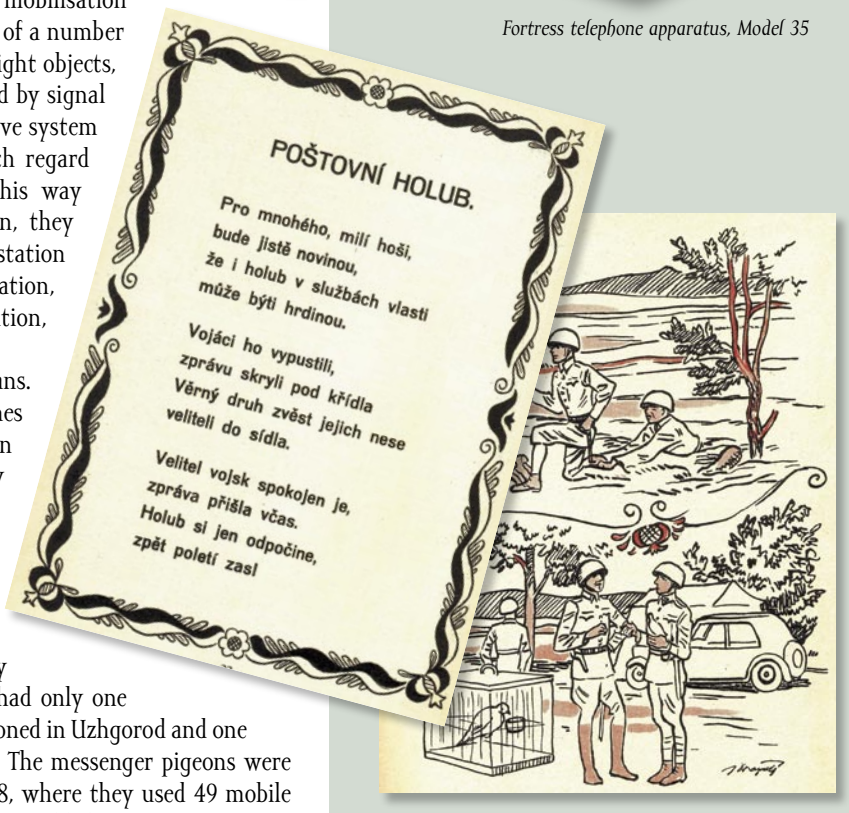
Tuning condenser of the station, Model 31

of artillery shells. The running cable had several earth cable lines leading to individual objects. Connecting and attachment points of the cable were under the surface of the terrain in reinforced concrete shafts. Entrances to the shafts were closed by cast steel cover furnished by a lock with a numerical code. The telephone line was led to the object through a cable inlet situated closely over the level of the logistic (lower) floor. Directorate of the fortress works strived to solve the possibilities of applying the radio telegraph and radio telephone communication. The Military Telegraph Workshops and Microphona Prague participated in the development of the communication equipment for the objects of the fortress. In May 1937, a prototype of Microphona Company, VMK 514, was selected for further development. During the transmission tests from a training reinforced concrete infantry pillbox in Brdy military area it proved its range up to 10 km. On September 1, 1937, Microphona received an order of two prototype sets, which were delivered in January 1938. The tests were going on till the mobilisation but the series production did not start the same as in case of a number of other weapons designed for the fortress. In case of the light objects, it was planned that the communication would be executed by signal flags or by light. Some kind of improvement of this primitive system was represented by using field telephone apparatus. With regard to the provisional installation of the cable network, this way of communication was highly unreliable. For this reason, they were testing the possibility of use of the common radio station introduced in the Army. The infantry radio telegraph station, Model 36, did not prove useful but the tank radio station, Model 35, achieved rather good results.



Fortress telephone apparatus, Model 35

Messenger pigeons were still used as communication means. Training in releasing the messenger pigeons from airplanes and experiments to drop them by parachute was going on even then. Since 1935, within reorganisation of the military messenger pigeon communication, the permanent and home columbaries were gradually cancelled and replaced by mobile columbaries. In the middle of the thirtieth, the number of mobile columbaries increased up to 77. The mobile columbaries had only two sections – one for the columbaries and the second for a store. Military columbaries were gradually reduced so that in 1938, we had only one permanent columbary at the Telegraph Battalion No. 4 stationed in Uzhgorod and one home columbary at the Telegraph Battalion No. 2 in Brno. The messenger pigeons were used as communication means during mobilisation in 1938, where they used 49 mobile columbaries in total. In February 1939, there was an order to establish again 6 permanent columbaries (2 in Bohemia, 1 in Moravia and 3 in Slovakia).



During mobilisation, the Czechoslovak Defence Force was furnished with the communication equipment of European level; in majority of cases it was independent of foreign countries. The mobilised units were connected by telephone network attached to the national telephone network, telegraph network attached to the national telegraph network (using the devices of Morse, Hughes type and predecessor of Creed teleprinter), radio telegraph network (used only as monitoring device during the mobilisation) and also the messenger pigeons. In 1939, during liquidation of the Czechoslovak Defence Force, the communication material valued at 372 mil. CZK was handed over to German Army. Beside other things, the communication material included 7,100 km of telegraph cable, 122,350 km of telephone cable, 50 mobile columbaries, 25 horse-drawn mobile columbaries, 15,000 pieces of telephone apparatus, Model 23, 29, 700 pieces of telephone apparatus, Model 35, 180 pieces of Creed telegraph apparatus, 189 pieces of Hughes telegraph apparatus, 143 pieces of Morse apparatus, 10,000 pieces of small signal apparatus and more 4,000 different infantry, air and tank radio stations.

Installation of lines


Opis.

Praha, 20. ČRVCE 1938

Důvěrné

Ministerstvo národní obrany
Čj.13132 Dův.-IV/2.odd.1938
Věc:Povelové zařízení pro rozčleněné pal.postavení děl.bat.-prototyp

MNO.-II/1.odděl.

IV/2.odděl.dalo pro Vás na Vaši žádost čj.19971 Dův.-II/1. odděl.1937 zhotoviti prototyp spoj.zařízení pro rozčleněná pal.post. děl.baterií.

Prototyp zhotovila fa Mikrofona a tento jest Vám v TS 2 k disposici.

Za ministra:

./.

20. ČRVCE 1938

Telegrafní sklad 2

Důvěrné

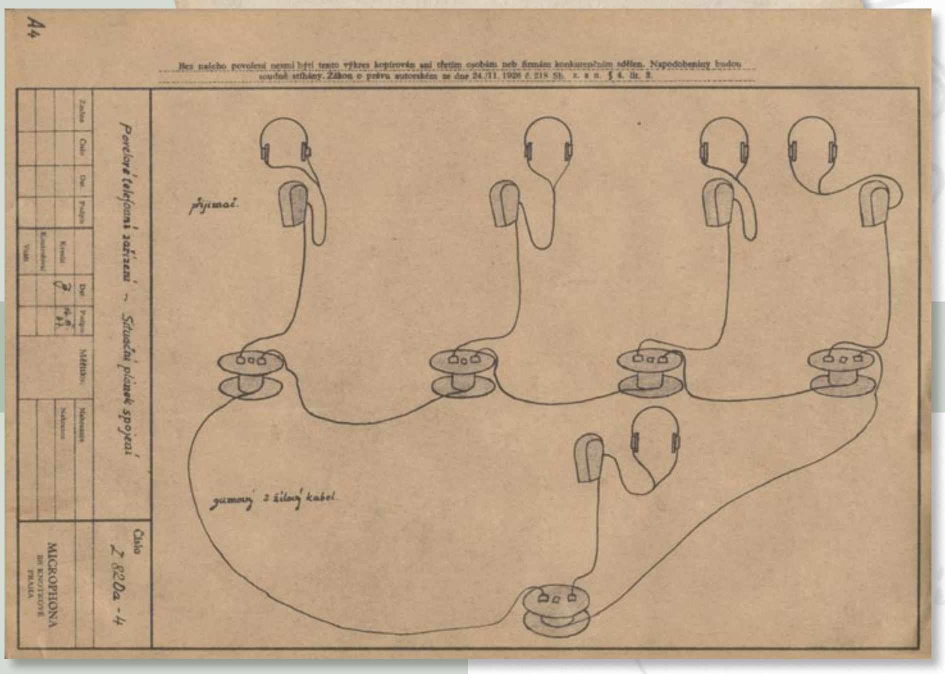
Praha-Karlín

Na vědomí.

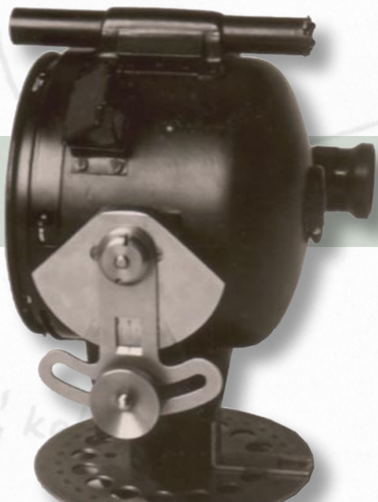
Za ministra:

TELEGRAFNÍ SKLAD 2.
Došlo: Praha, 23/7 1938.
Čj. 1250 Dův.-tel. Příloh:
Vyřízeno
Zal.
Velitel tel. skladu 2.

RP5 finding receivers, production lot I,
used by the monitoring companies of telegraph battalions.
They were mounted on automobile trailers (carts)
delivered by Prague Fross – Büssing Company



Command guidance device for the artillery batteries firing positions



Signalling apparatus, Model 03

RP20 radio receiver, production lot I

RP16 radio receiver

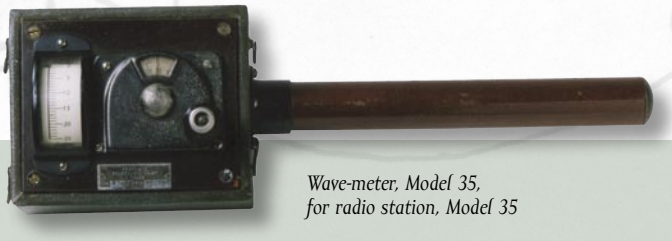
Prototype of Microphona VMK 514 fortress radio station

RP12 radio receiver, production lot II

D.22 telephone apparatus produced by Military Telegraph Workshops

Tank radio station, Model 35,
installed in LT tank, Model 35

Ericsson – Polish telephone switchboard



Wave-meter, Model 35,
for radio station, Model 35

Latvian telephone apparatus

TN – German telephone apparatus

Kapsh 1937 – Austrian telephone apparatus

LZ-Z - German telephone apparatus

Cacak – Yugoslavian telephone apparatus

R.T. – Hungarian telephone apparatus

Yugoslavian telephone apparatus, Model 34

WORLD WAR II – THE YEARS 1939–1945

CZECHOSLOVAK RESISTANCE ABROAD

POLAND

On September 1, 1939, Poland was invaded by Germany without declaration of war. It was the beginning of the second war conflict of the twentieth century. However, resistance of the Czechoslovaks against occupation began immediately after March 15, 1939. President Beneš, who left for London exile shortly after the Munich events, became the head of the Czechoslovak resistance abroad. Home resistance movement kept in touch with him, too. Thousands of men and women striving for defeat of the hateful Germany and restoration of Czechoslovakia were engaged in the combat against Nazism on the fronts of World War II as well as on the home front in the occupied Protectorate. The men and women fighting with earphones on their heads played an important role among the fighters. Regarding the narrow orientation of this publication we are far from mentioning all the participants of the Czechoslovak resistance at home and abroad. Only description of all the airlanded troops from United Kingdom equipped with radio stations would cover the whole book. Therefore, the next pages will describe only the most successful and most important operations of WWII where the communication means, used by the Czechs and Slovaks, played very important role in the battle for freedom.

Sd. Kfz. 232 – German armoured radio vans equipped with Fu11 radio sets, in Prague - Na Příkopě, on March 15, 1939

Czechoslovak volunteers in front of the Consulate in Krakow

Majority of the Czechoslovaks, departing abroad after March 15, 1939, found an asylum in the neighbouring Poland where the emigrés were organized by Czechoslovak consulate in Krakow. In April 1939, they began to be militarily organized in the camp in Malé Bronovice by Krakow from where they were gradually sent by five transports, including more than thousand persons, to France. On August 3, 1939, shortly after break up of the war, the Czechoslovak unit in Poland was officially acknowledged by the Decree of the President of the Republic of Poland under the name of Legion of Czechs and Slovaks in Poland and declared to be a detached Czechoslovak military unit attached to Polish Army and subordinated to the Polish Army Commander. The legion, the signallers of which were equipped with several pieces of telephone apparatus only, moved eastward and on September 18, 1939, majority of the troops headed by Infantry Lt. Colonel Svoboda went over to the territory occupied by Red Army on the basis of secret amendments to Soviet-German Agreement, dated August 23, 1939. Members of the legion were captured and interned in the camps in Yarmolintse and Olkhovitse from were they gradually moved to the camp in Oranky by Nizhni Novgorod and finally to Suzdal. Making use of the military transports, some of the interned persons succeeded to travel to the Czechoslovak units in the West. Based on the concluded Czechoslovak-Soviet Agreement, less than one hundred of the remaining soldiers became the basis of the nascent Czechoslovak military troops on the territory of Soviet Union.

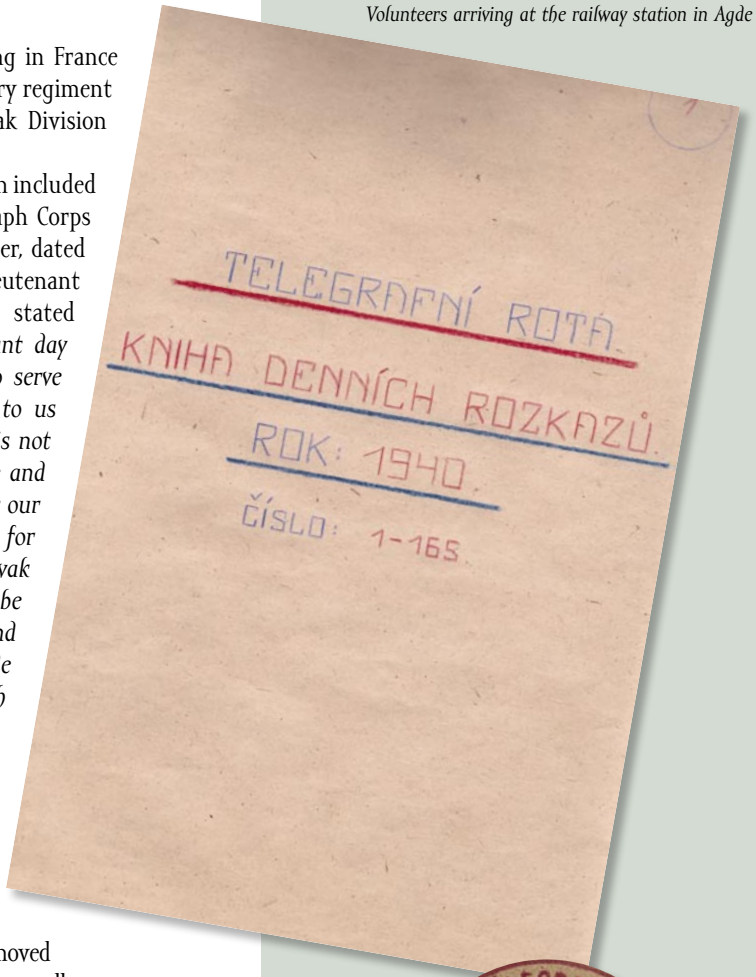
Polish telephone apparatus, Model 37

FRANCE

Volunteers arriving at the railway station in Agde

The Czechoslovaks who came to France expecting that Czechoslovak Legions will be formed here in the manner of World War I did not meet understanding and they were forced to join the French Foreign Legion. The situation changed on September 3, 1939, after France declared war against Germany and namely, after signing the agreement concerning restoration of Czechoslovak Army in France, concluded on October 2, 1939. As early as on September 15, 1939, the Czechoslovak soldiers reported to the service in the camp in southern France city of Agde, where, on September 29, 1939, they established Infantry Battalion No. 1. From the viewpoint of political competence the Czechoslovak Army in France was subordinate to the Interim Czechoslovak Government in exile and, from military point of view, to the French Supreme Military Command. Formations of the Czechoslovak troops in France were complemented by the Czechoslovak citizens living in France and other countries. The battalion gradually grew up to an infantry regiment and on January 15, 1940, they established the 1st Czechoslovak Division consisting of 11,495 men in May 1940.

From the beginning, the plans concerning formation of the division included also a telegraph battalion. The first Czechoslovak unit of Telegraph Corps in France was the 1st Telegraph Company established by the Order, dated January 6, 1940. The Company Commander, Telegraph Corps Lieutenant Jaroslav Prachař, in his Order No. 1, dated January 9, 1940, stated as follows: *"All the members of this arm welcome this important day for us with great pleasure and pride. It is an honour for us to serve in the first telegraph unit, to perform the tasks which belong to us and which we are prepared for. Imagine all of you, that this task is not small. Its accomplishment requires self-sacrificing work, discipline and effort. When working, let us be strengthened by the awareness that our beloved at home anxiously follow our activity and we are fighting for liberation of our dear, so much suffering motherland, the Czechoslovak Republic. Then, no sacrifice will be too big and no obstacle will be overwhelming. The Day of revenge is approaching – and it will find us prepared. I welcome all of you with a feeling of professional pride and I call you to work in our 1st Telegraph Company. Telegraph Company, "Nazdar!"*



After having formed the division, they established Telegraph Battalion No. 1, under the command of Major General GS Jan Vastl, involving the 1st Telegraph Company marked as Telegraph Company No. 195/81 and Radio Telegraph Company No. 195/82. Training of the telegraph battalion was held in Montpellier where the original telegraph company from Agde moved by train on March 11, 1940, as well.

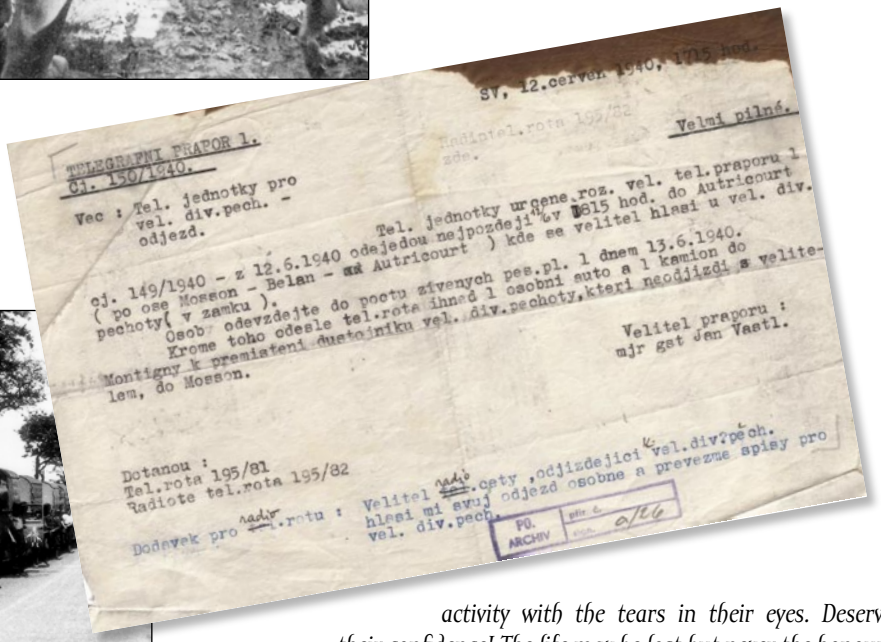
On May 10, 1940, Germany invaded Luxembourg, Netherlands, Belgium and France. It was the beginning of further phase of World War II. With regard to low-level of training and insufficient armament, they did not employ the whole 1st Czechoslovak Division in combat. Two regiments and several

French telephone apparatus, Model 36

German General Heinz Guderian
at Sd. Kfz. 251/6 mobile command post equipped with Fu 8 radio station and Engima cryptographic machine during the attack against France

German Army used a number of Czechoslovak equipment in France, i.a. the columbaries made by Military Telegraph Workshops

smaller units formed so called Division Infantry, consisting of about 5,000 men under the command of Brig. General Jaroslav Čihák-Znamenáček, and moved to the front in June 1940. Permanent readiness of the telegraph company was ordered on May 24, 1940 and then, on June 9, 1940, the company started its move to the war area. Commander of the company in its Company Order No. 128 stated: *"Today, our Company will move to the war area. Our wish to fight the enemy and to avenge ourselves for the wrong and violence committed on our nation and mankind. The world is looking at us. Our beloved follow secretly our*



TELEGRAFNÍ PRAPOR 1.
Čj. 150/1940.

Velmi pilné.

Věc : Tel. jednotky pro vel. div.pech. - odjezd.

Tel. jednotky urgene.roz. vel. tel.praporu 1
čj. 149/1940 - z 12.6.1940 odjedou nejpozději v 1815 hod. do Autricourt
(po ose Mosson - Belan - na Autricourt) kde se velitel hlasí u vel. div.
pěchoty(v zámku).
Osob odevzdejte do pootu zivených pes.pl. 1 dnem 13.6.1940.
Krome toho odesle tel.rota ihned 1 osobní auto a 1 kamion do
Montigny k premisteni dustojniku vel. div.pechoty,kteri neodjizdi s velite-
lem, do Mosson.

Velitel praporu :
mjr gst Jan Vastl.

Dotanou :
Tel.rota 195/81
Radiote tel.rota 195/82

Dodavek pro radir.rotu : Velitel radir.cety ,odjizdejici k vel.div.pech.
hlasi mi svuj odjezd osobne a prevezme spisy pro
vel. div.pech.

PO. ARCHIV

Retreat to Southern France

activity with the tears in their eyes. Deserve their confidence! The life may be lost but never the honour! The Czechoslovak airmen have not failed, we shall not fail either."

In the evening of June 12, 1940, selected members of the telegraph and telephone company moved to Autricort where they joined directly the infantry division command. 2 officers and 43 men of telegraph company (22 lineman and 21 telephone operators) and 27 men of radio telegraph company left for the front. On June 13, 1940, the Czechoslovaks engaged the defensive operations on Marna River, east of Paris, for the first time. Request of French Marshal Pétain for armistice resulted in complete collapse of the French resistance. Having evaluated the situation, the Czechoslovak political and military command decided on evacuation to United Kingdom. On June 19, 1940, members of division infantry started the distressful retreat southwards. France signed armistice with Germany on June 22, 1940. On June 23, Czechoslovak soldiers arrived at Nontron where they handed over their heavy weapons, horses and vehicles and were transported to the area of embarkation in the South French ports. Ships were concentrated in Gibraltar and on July 1940, the troops landed in the port of Liverpool and Plymouth. Nearly 5,000 Czechoslovak soldiers and civilians succeeded to evacuate to United Kingdom.

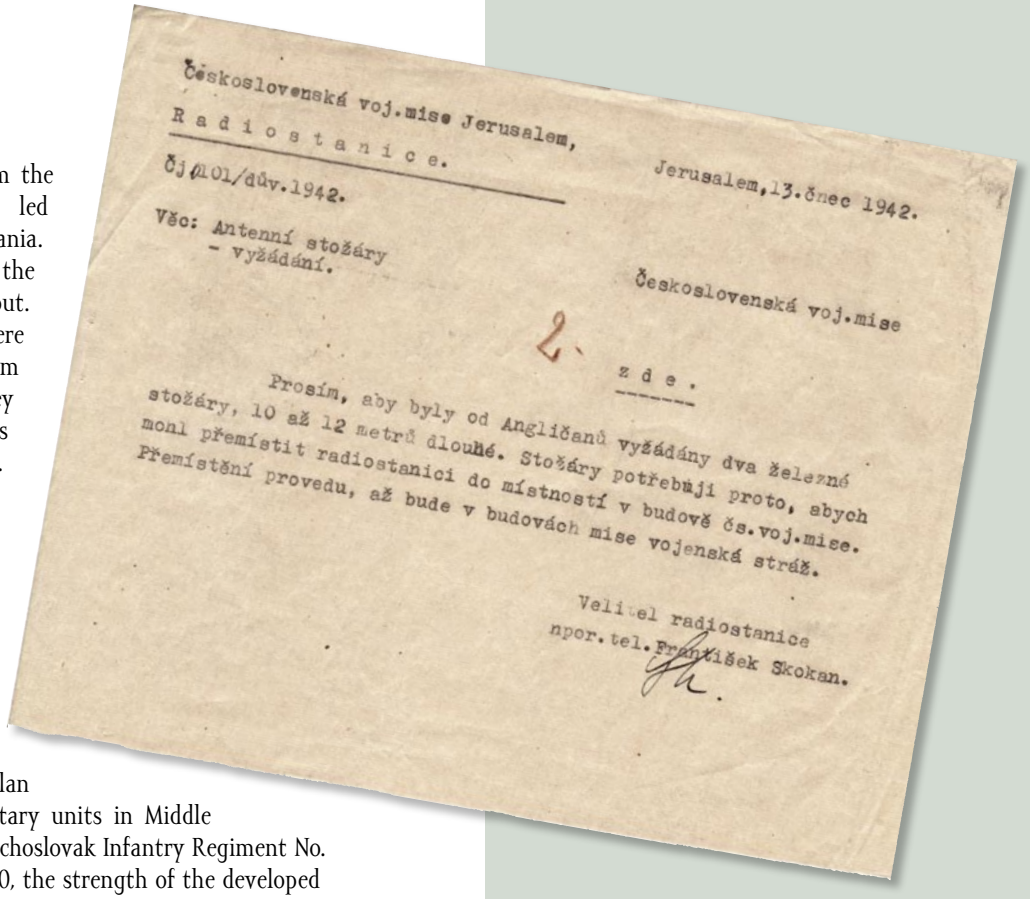
Evacuation of the Czechoslovaks to Great Britain

MIDDLE EAST

One of the important escape routes from the Protectorate of Bohemia and Moravia led through Slovakia, Hungary and Romania. After the defeat of Poland, a number of the Czechoslovaks chose the southern rout. Before further tour to France they were concentrated in Syria and Lebanon from where, after the defeat of France, they were allowed to go to Palestine which was under British administration that time. Czechoslovak Consul General in Jerusalem J. M. Kadlec organised recruiting of soldiers to the Czechoslovak Army Abroad since the year 1939 already.

After an agreement of the Czechoslovak Military Commissioner for Near East and later Commander of Czechoslovak Military Mission in Middle East Ondřej Mézl-Gak with the British Command, they established an outline plan of organisation of the Czechoslovak military units in Middle East. In August 1940, they established Czechoslovak Infantry Regiment No. 4 at Gedere in Palestine. In September 1940, the strength of the developed regiment was augmented by the group of soldiers who were interned in the U.S.S.R. after the defeat of Poland.

However, the increased number of transports of the Czechoslovak soldiers from Soviet Union was not enough to cover the planned strength of the regiment. On November 1, 1940, after reorganisation of the regiment, they established Czechoslovak Infantry Regiment No. 11 – Eastern - within the Czechoslovak Military Group in Middle East, under the command of Lt. Colonel Karel Klapálek. Signal Platoon headed by Artillery First Lieutenant Emil Konopásek became a part of the



Československá voj.mise Jerusalem,
Radiostanice.

Čj 0101/dův.1942. Jerusalem, 13. čnec 1942.

Věc: Antenní stožáry
– vyžádání.

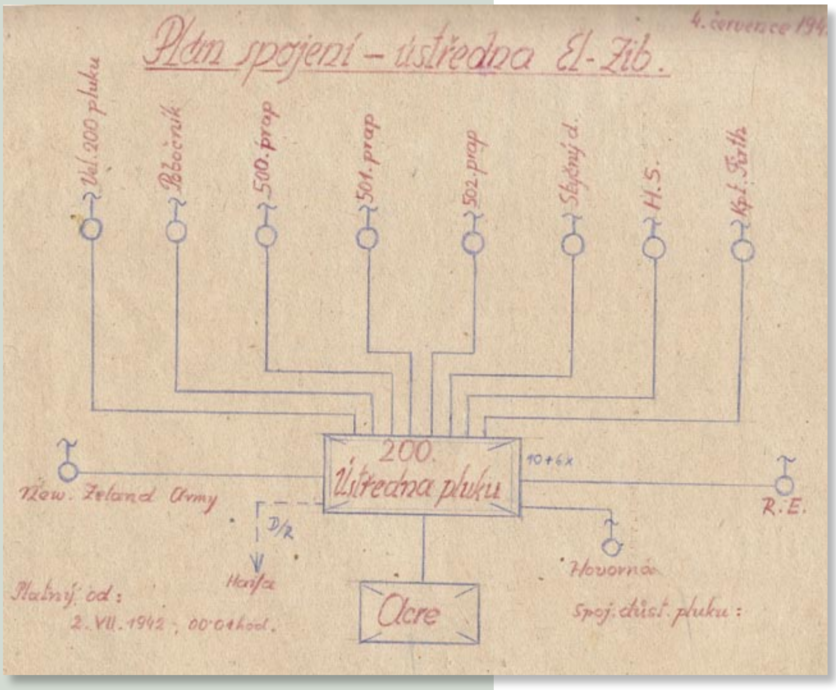
Československá voj.mise

2.

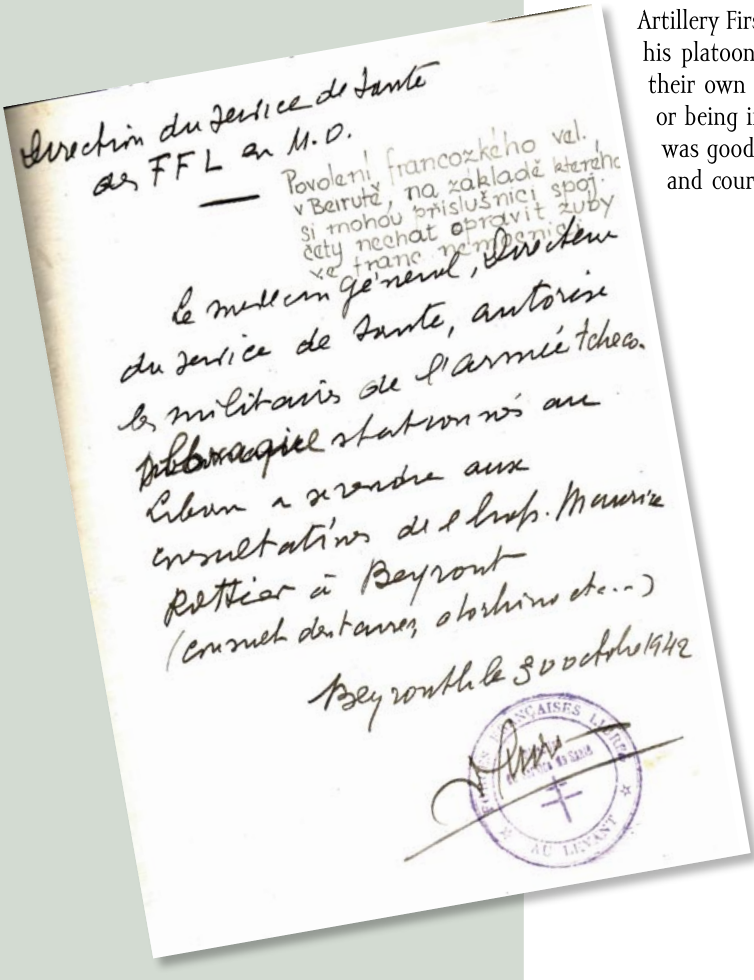
zde.

Prosím, aby byly od Angličanů vyžádány dva železné stožáry, 10 až 12 metrů dlouhé. Stožáry potřebuji proto, abych mohl přemístit radiostanici do místností v budově čs.voj.mise. Přemístění provedu, až bude v budovách mise vojenská stráž.

Velitel radiostanice
npor. tel. František Skokan.



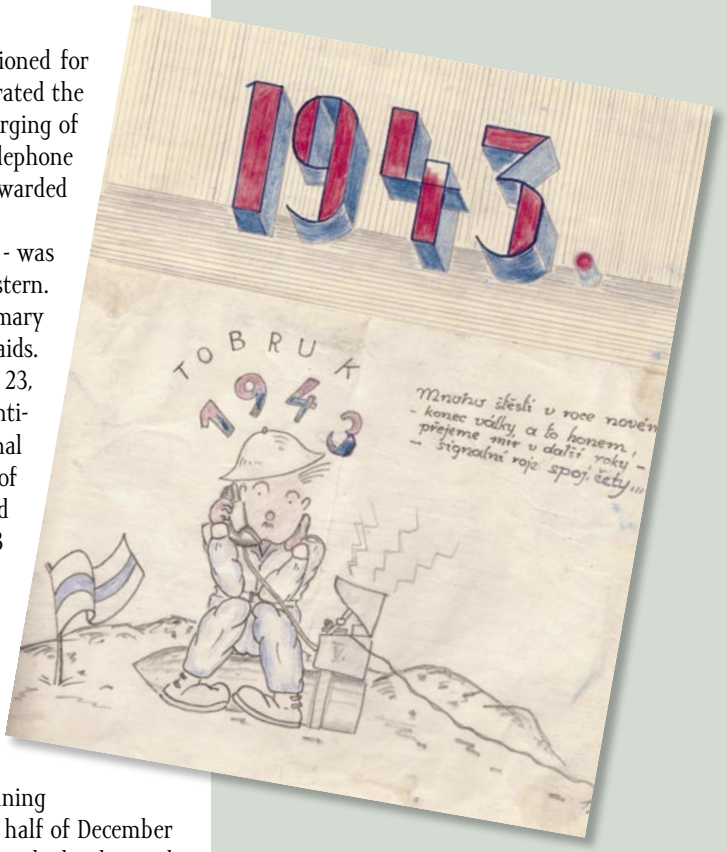
Headquarters Company of the Battalion. In December 1940, the battalion was moved to the new training centre in Jud Desert nearby Jericho. In February 1941, it left the place and moved to Egyptian oasis of Sídí Bishr nearby Alexandria with the task to guard the harbour, airport and POW camps. On June 1, 1941, the Czechoslovak Infantry Battalion No. 11 – Eastern - reached the strength of 759 men. At the turn of June and July 1941, the battalion was employed within EXPORTER operation in the battles against Vichistic France in Lebanon and Syria. Having accomplished the operation, the battalion was encharged with guard duty in the large area of Syria-Turkey border. In October 1941, the battalion moved to the enclosed Tobruk port which was successfully defended by the Czechoslovaks, side by side with the British, Poles, Australians and Indians till December 1941. Defence of Tobruk became one of the most significant chapters of the Czechoslovak resistance abroad. The Czechoslovaks remained in Tobruk till the end of March, 1942, when the Czechoslovak Infantry Battalion No. 11 – Eastern – was withdrawn from the front. Signal Company performed its task very well during the whole time of the battles. It is proved by the assessment included in the Order of Czechoslovak Military Mission in Jerusalem, dated January 20, 1942, issued on the occasion of awarding the members of Czechoslovak Troops in Middle East. Signal Platoon leader, Artillery First Lieutenant Konopásek was highly assessed for the fact that he and his platoon promptly repaired and then, personally tirelessly controlled, from their own initiative, the extensive telephone network, often under enemy fire or being interrupted other way. The fact that he was not afraid of the danger was good example for the members of his platoon who proved their devotion and courageous work in maintaining the network, working the whole time.


Direction du Service de Santé des FFL au M.O.

Povolení francouzského vel. v Beirutě, na základě kterého si mohou příslušníci spoj. čety nechat opravit zuby ve franc. nemocnici

Le médecin général, Directeur du Service de Santé, autorise les militaires de l'armée tchécoslovaque stationnés au Liban à se rendre aux consultations de l Prof. Maurice Rettier à Beyrouth (conseil dentaires, stomatologie etc...)

Beyrouth le 30 octobre 1942

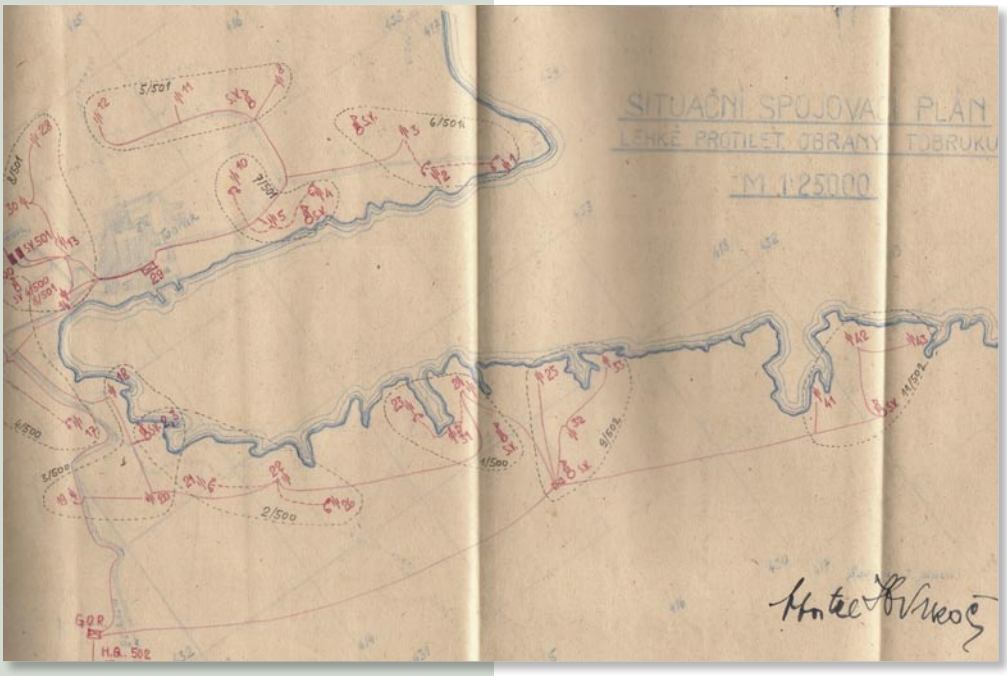


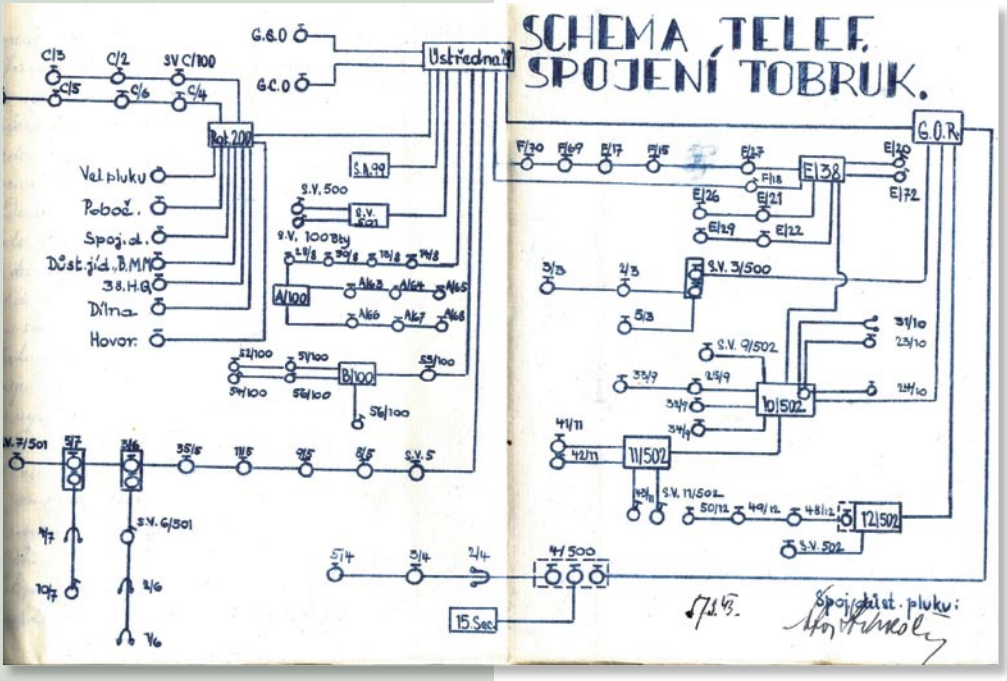
Other member of the Signal Platoon Corporal Pavel Bohuš was mentioned for his devoutness. On November 18, 1941, during natural disaster, he operated the telephone exchange being in water to the waist. After complete submerging of the shelter, he saved the telephone exchange and several pieces of telephone apparatus and restored the communication. The two soldiers were awarded Czechoslovak War Cross 1939.

On May 22, 1942, the Czechoslovak Infantry Battalion No. 11 – Eastern - was reorganized to Czechoslovak Light Anti-Aircraft Regiment No. 200 – Eastern. Colonel Klapálek was appointed commander of the regiment the primary mission of which was to defend harbour and airports against air raids. Signal Company kept operating at the regiment headquarters. On May 23, 1942, it issued its Order No. 1. Its full name was: Czechoslovak Light Anti-Aircraft Regiment 200 – Eastern - Signal Platoon – Eastern. The Signal Platoon with its leader Artillery First Lieutenant Konopásek consisted of three squads: 1st Central Operators' Squad; 2nd Construction Squad and 3rd Drivers´ Squad. In addition to the commander, the squad involved 33 men. On June 1, 1942, the Signal Platoon moved to Ez Zibu by Nahariya in Palestine, where it built a communication with the commands of all the three battalions of the regiment and with the regiment headquarters. The regiment was organisationally attached to the British 7th Anti-Aircraft Brigade of the 9th Army and encharged with anti-aircraft defence of Haifa Port and refineries in Beirut and Haifa. On August 5, 1942, the signal platoon was displaced to Beirut.

In December 1942, the whole regiment moved again. At the beginning of the month, the signal platoon was shifted to Jericho. In the second half of December 1942, the regiment was again attached to the troops of the 8th Army, which advanced already to Tripoli. On December 30, 1942, the units of the regiment including signal platoon returned to Tobruk – the town which brought them suffering and glory one

Firing position in Tobruk

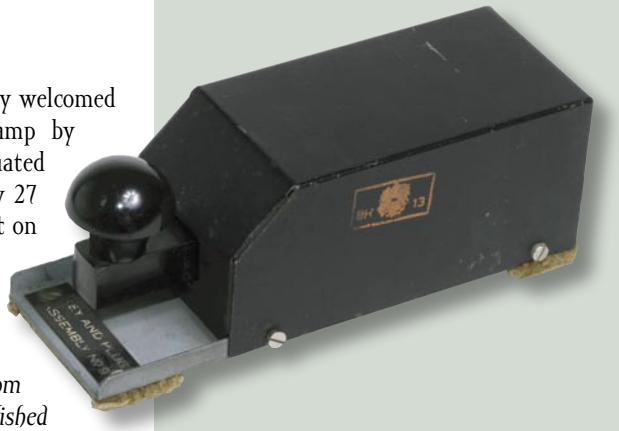




year ago. In Tobruk, the regiment took over the defence of harbour and airports of El-Adem and Bu Amud. Main task o the signal platoon was to develop quite new communication networks to enable improvement of fire control system. The telephone lines were conducted to each gun within the system of anti-aircraft defence. Members of the platoon succeeded to gather up the necessary communication material in the desert where a large number of armament and equipment was left after preceding battles of the two belligerents. Thanks to the new communication network, they could implement new system of directional curtain fire. In four months (till April 30, 1943), the signal platoon installed 335 km of telephone lines. Highly demanding weather conditions, storm and thundershowers caused innumerable breakdowns. The repair teams, soaking wet and wading through sludge, where operating permanently.

On June 18, 1943, the signal platoon headed by Telegraph Troops Second Lieutenant Vrkoč together with the regiment left Tobruk and set out for a trip to Quassassin Camp in the delta of Nil. Here, the regiment handed over the armament and vehicles and prepared itself to depart for United Kingdom. On June 21, 1943, Lieutenant Rohlena took over the command of the signal platoon and soon, on July 4, 1943, the regiment left for Tewfik port, where it got on board of Mauretania ocean weather transport ship. After long-range navigation around South Africa, Mauretania landed in British Liverpool port on August 11, 1943.

GREAT BRITAIN

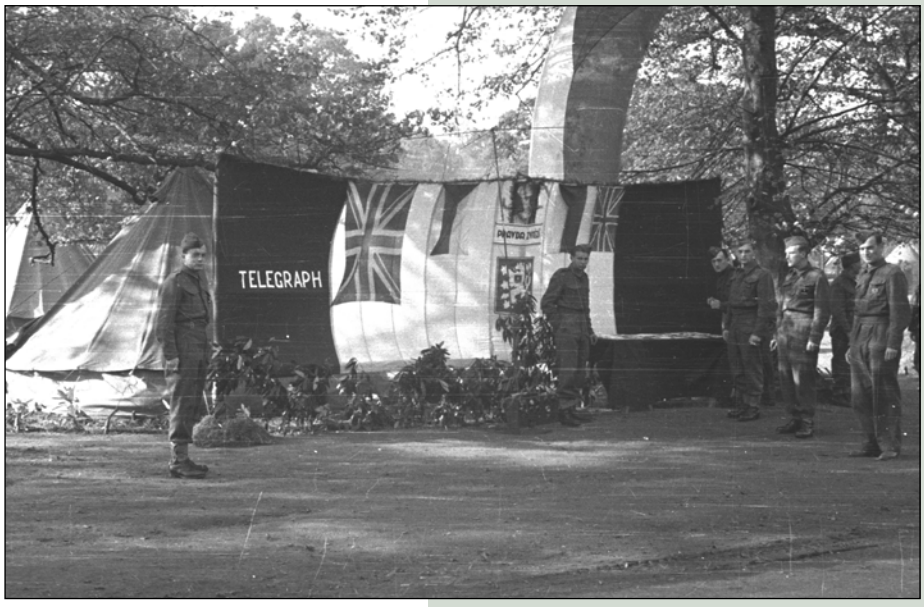


The Czechoslovak soldiers, evacuated from France in July 1940, were heartily welcomed in Great Britain. The Czechoslovak unit began to form in a tent camp by Cholmondeley castle. The soldiers of the 1st Czechoslovak division, evacuated from France, included also the members of Telegraph Battalion No. 1. Only 27 men of the above mentioned group of 70 men which were sent to the front on June 12, 1940, arrived at England (30 men demobilised in Agde, 1 injured, 9 missing in action and 3 deserters). Commander of Telegraph Company No. 195/81, Sig. Lieutenant Prachař welcomed the soldiers in the Order No. 134, dated July 9, 1940, by the following words: *"I welcome cordially all the members of Telegraph Battalion No. 1 who arrived at England from France with an intention to continue in the task which could not be accomplished on the territory of France..."* At the same time he made them acquainted with the divisional Order No. 105 according to which the Telegraph Battalion No. 1 was organized as Telegraph Company under the command of Maj. GS Vastl. The Company consisted of Telegraph Half-Company and Radio Telegraph Half-Company. On August 10, 1940, the Telegraph Company was furnished with British equipment and four days later, it issued its last Order.

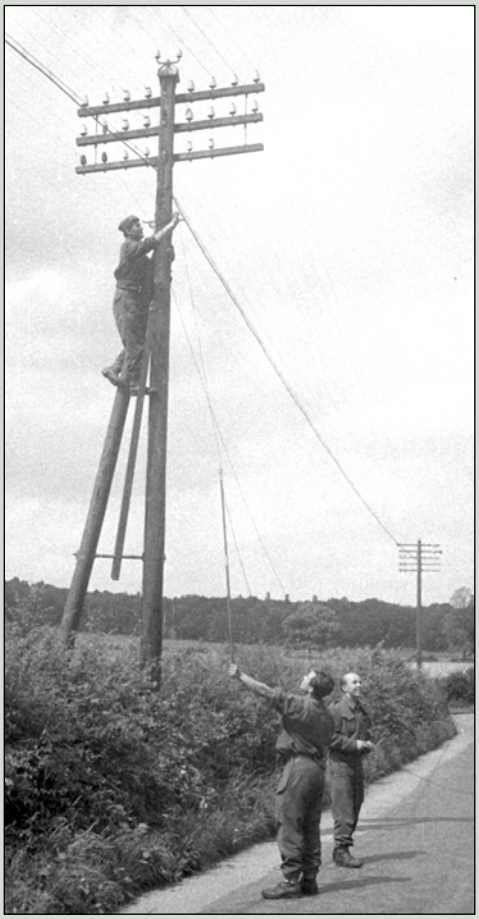
On July 21, 1940, the Czechoslovak Exile Government in London established Ministry of National Defence headed by Division General Sergej Ingr. On August 12, 1940 they formed the 1st Czechoslovak Combined Brigade under the command of Brig. General Bedřich Neumann-Miroslav. As a result of new organisation of the Czechoslovak units in England, the telegraph company was transferred to telegraph platoon. At the same time, officers and personnel selected for the Air Force and one officer and personnel earmarked for a training telegraph platoon at the replacement unit left for the replacement unit of the brigade. On August 15, 1940, the Telegraph Platoon headed by Maj. GS Vastl issued its first Order. Beside the telegraph platoon, there were two signal platoons at disposal of two infantry battalions of the brigade. Each signal platoon consisted of 1 officer and 27 men. Within the training of the 1st Czechoslovak Combined Brigade, high importance was attached to the bases of communication which were explained to all the personnel during the lessons. Depending on the results of examination, they selected adepts for the enlarged communication course.

One or two lessons were devoted to communication training every day and the remaining lessons were aimed at general military training. The lessons started by learning Morse alphabet then, operating instructions and finally, learning of different types of communication equipment. The lessons were aimed at gradual mastering of the communication equipment beginning from the simplest to the most complicated one. At first, they learned the telephone apparatus; then, telephone exchange and

Welcome to Liverpool



Camp in Cholmondeley



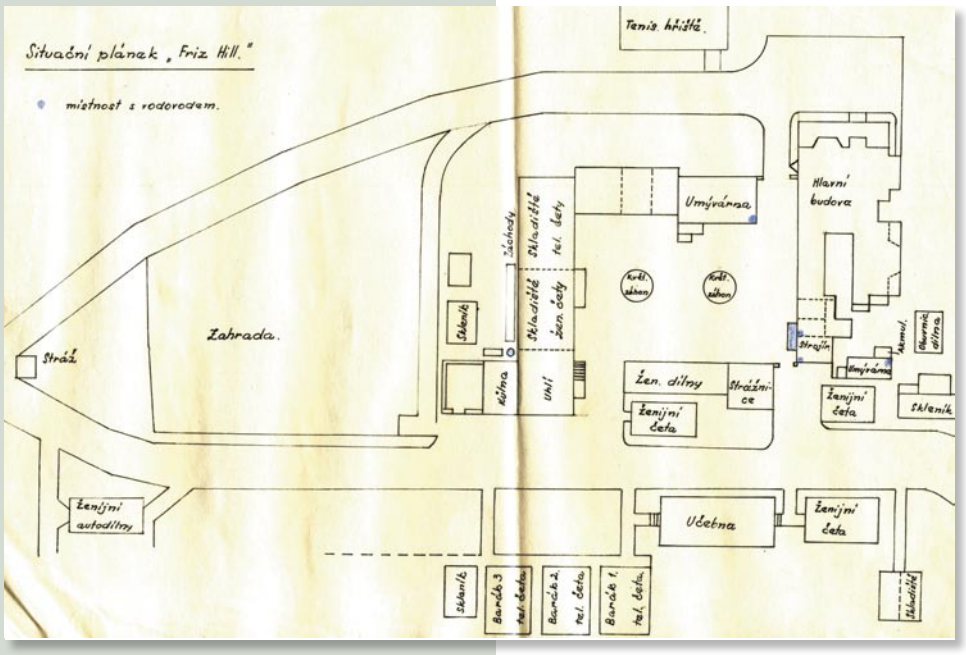
Installation of lines

Training with W.S. No. 1 radio station

finally, they trained the operation of radio stations. The training couldn't do without laying telephone lines. Those who were acquainted with electronics were selected for workshops. In September 1940, the telegraph platoon started training of motor cyclists serving as despatch riders.

In October 1940, the brigade was dislocated as a general anti-airborne replacement unit into permanent garrisons in Warwickshire. Brigade Headquarters was stationed in Leamington Spa nearby Coventry. On October 13, the telegraph platoon moved to the Friz Hill station. The brigade participated in a number of anti-invasion exercises, it improved its coordination with Home Guard, Air Force and British Land Forces and it guarded the adjacent airport. In the critical period, when German invasion of British islands was expected, members of the brigade were ready to an immediate engagement in combat operations.

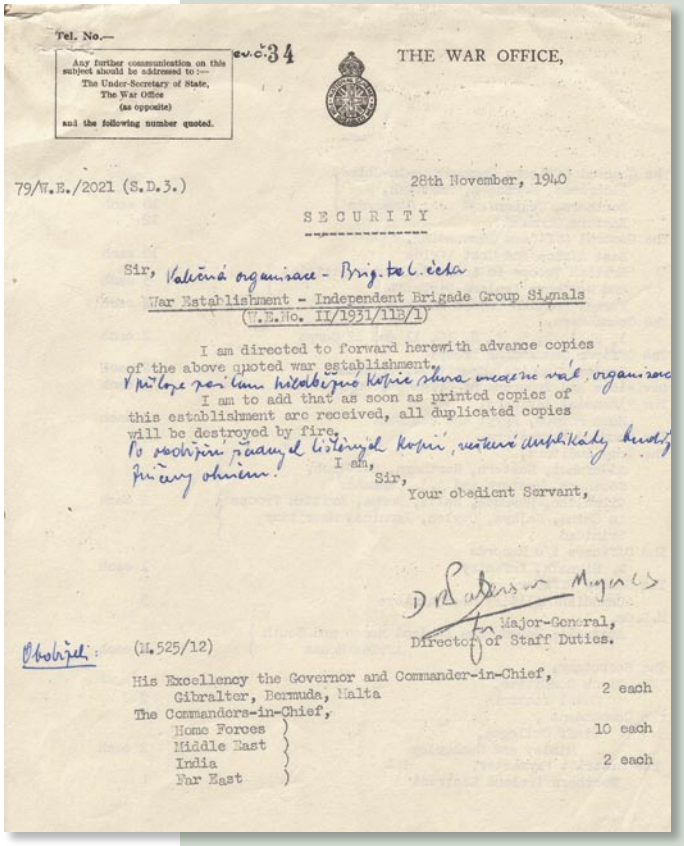
On October 25, 1940, Czechoslovak Exile Government in Great Britain concluded agreement with the Government of United Kingdom of Great Britain and Northern Ireland which became a legal document for the origin and activity of the Czechoslovak military units in the United Kingdom.



Conclusion of the year 1940 in Friz Hill was not characterised by training only. On December 24, 1940, at noon, President Edvard Beneš and his wife Hana visited Friz Hill. New Year brought other significant changes within the telegraph platoon. On January 31, 1941, the existing platoon leader Maj. GS Vastl left the unit for Military Office of the President of the Republic and handed over the command of the platoon to Telegraph Corps First Lieutenant Prachař. On January 4, 1941, they issued an interim organisation of the platoon which includes the change of the name to Brigade Telephone Platoon. At the end of February, members of the platoon established a telephone exchange at the Brigade Headquarters in Leamington and,

at the same time, a radio station headed by Sergeant František Vostřejš started its operation. In June 1941, final organisation of Czechoslovak Land Army came into effect but it did not practically touch the telegraph platoon. It specified the definite name – Brigade Signal Section and the organisation and basic strength remained unchanged, i.e. 79 men. As of July 1, 1941, the 1st. Czechoslovak Combined Brigade was reorganised according to British tables of organisation and equipment and renamed to Czechoslovak Independent Brigade. The next two-year period served for training of individual components of the brigade and replenishment of equipment. Soldiers acquired professional and language skill, they participated in defence and guarding of English coast. In September 1941, the Brigade Signal Section started development of permanent telephone network of the brigade and established a monitoring service to control any radio operation within the brigade.

In March 1942, the signal section moved to New Street in Leamington. On April 1, 1942, Telegraph Corps First Lieutenant Prachař, at his own request, handed over the command of the section and within less than two months, Artillery Major Alois Buršík became its leader. On May 1, 1942, the brigade was relocated to Devonshire and Somersetshire in Southern England with the task to guard the airport, various military objects and a part of coast. The Headquarters was based in Yeovil town and the brigade trained, in coordination with British units and Air Force, defending of strengthened defence position and various options of the attack. On May 15, 1942, Staff Captain, GS Cingroš took over command of the Brigade Signal Section and at the beginning of June, the Signal Section was divided into: A) radio telegraphers, B) Fuller



Tel. No.—

Any further communication on this subject should be addressed to:—
The Under-Secretary of State,
The War Office
(as opposite)
and the following number quoted.

ev.č. 34

THE WAR OFFICE,

79/W.E./2021 (S.D.3.) 28th November, 1940

SECURITY

Sir, Valečná organisace - Brig. tel. četa

War Establishment - Independent Brigade Group Signals
(W.E.No. II/1931/118/1)

I am directed to forward herewith advance copies of the above quoted war establishment.

I am to add that as soon as printed copies of this establishment are received, all duplicated copies will be destroyed by fire.

I am,
Sir,
Your obedient Servant,

Major-General,
Director of Staff Duties.

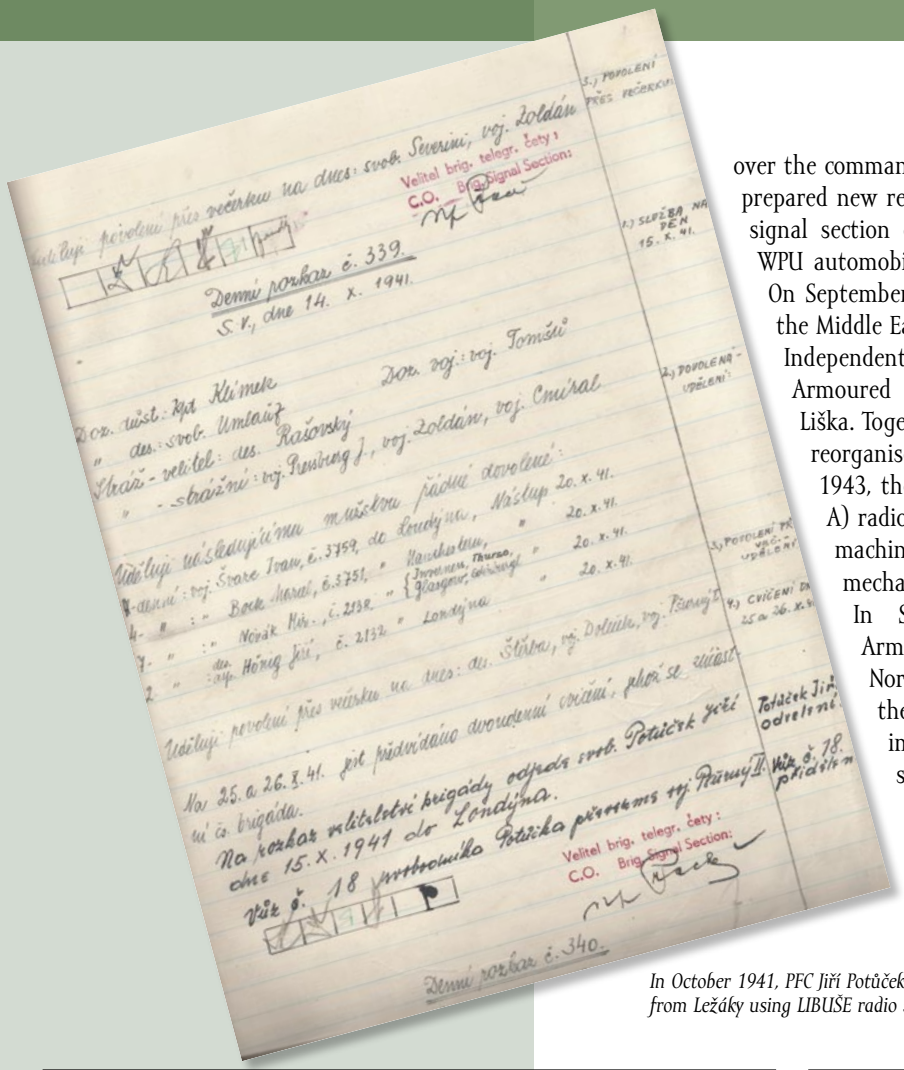
(M.525/12)

His Excellency the Governor and Commander-in-Chief,
Gibraltar, Bermuda, Malta 2 each
The Commanders-in-Chief,
Home Forces
Middle East 10 each
India
Far East 2 each

Dispatch rider of a telegraph platoon using BSA M20 motorcycle

phone (portable telegraph) operators, C) telephone operators, D) construction, E) Signal-Division, F) Optics - strip signs and G) dispatch riders. In the middle of August, 1942, after successful execution of three large operational and tactical exercises and after its replenishment by special automobiles and transporters, the brigade was relocated to Suffolk on the eastern coast of England. Headquarters of the brigade that took up a defensive position of the coast was located in Lowestoft port. The brigade prepared itself for the execution of future combat tasks and it trained loading and unloading. Since January 15, 1943, the brigade was under the command of Colonel Jan Kratochvil. Next movement was organized at the beginning of February 1943. The brigade was displaced to the southernmost part of the east cost in Essex with its headquarters based in Harwich port. On March 21, 1943, Colonel Alois Liška was appointed new Commander of the Brigade. On April 10, 1943, Telegraph Corps Staff Captain Václav Reitinger took

Training with W.S. radio station No. 8


Velitel brig. telegr. čety:
C.O. Brig. Signal Section:
Denní rozkaz č. 339.
S. V. dne 14. X. 1941.
Denní rozkaz č. 340.

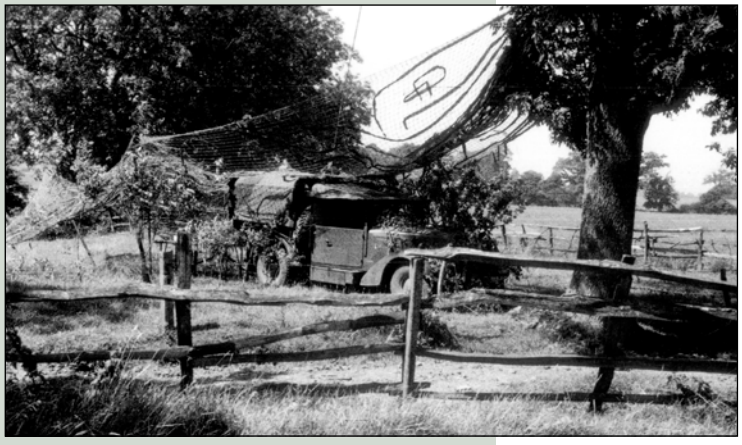
over the command of the brigade signal section. Since June 1943, they prepared new reorganisation of the brigade. As of June 14, 1943, the signal section disposed of 14 BSA M20 motor cycles, 10 Humber WPU automobiles, 4 Ford 15cwt and 2 Studebaker 2t automobiles. On September 1, 1943, when the Czechoslovak units arrived from the Middle East, they were attached to the Czechoslovak Independent Brigade and formed the Czechoslovak Independent Armoured Brigade under the command of Brig. General Alois Liška. Together with this change, the Brigade Signal Section was reorganised to Brigade Signal Squadron. Since September 1, 1943, the signals squadron training was arranged as follows: A) radiotelegrapher´s group; B) radiotelegraph mechanic and machine operator's group; C) motorcycle driver and auto mechanic's group.

In September 1943, the Czechoslovak Independent Armoured Brigade was moved to the surrounding of Northampton in Middle England, where it was to perform the tasks connected with protection of local militarily important objects. On September 26, 1943, the signal squadron was moved to Great Oakley, where it built new quarters. Shortly afterwards, on October 6, 1943, a new organisation of training came into effect as follows: 1) radiotelegrapher´s group; 2) mechanic and machine operator's group; 3) driver's group;

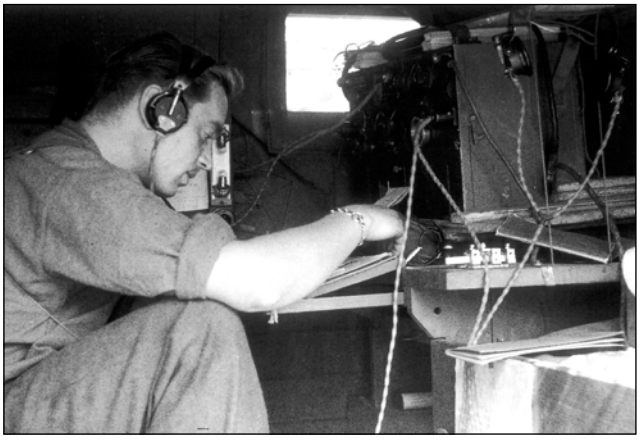
In October 1941, PFC Jiří Potůček, later member of SILVER A airdrop who transmitted from Ležáky using LIBUŠE radio station, left the telegraph platoon

Intercommunication by flags

Muster of telegraph platoon at an operational field exercise



Humber Snipe WPU radio van

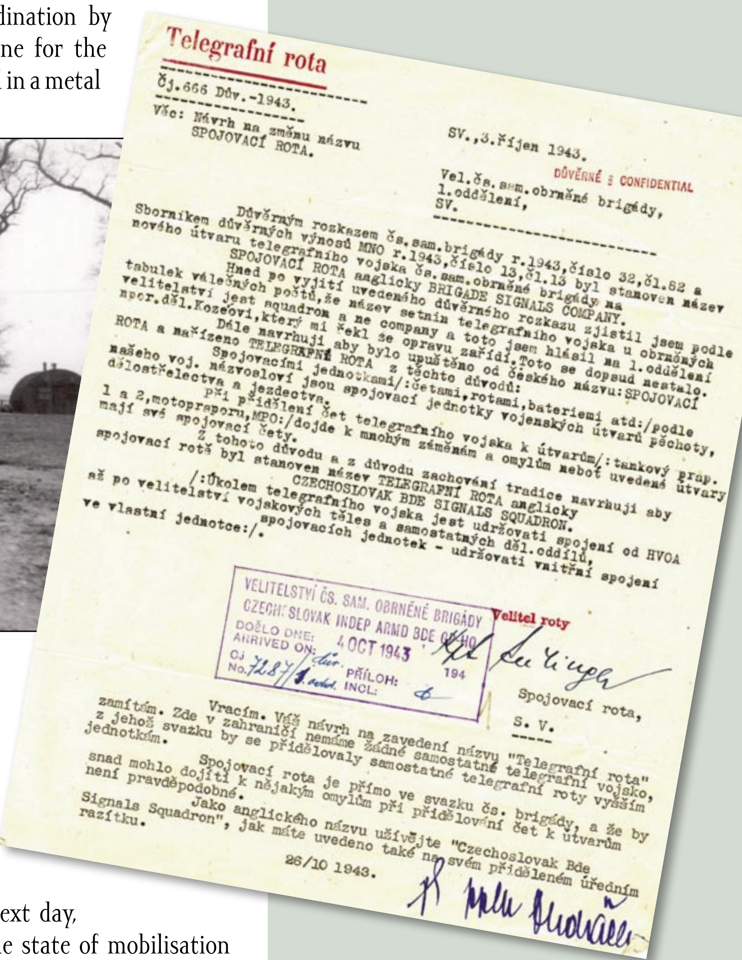


Radio van interior with W.S. radio station No. 1

4) group of manpower of former signal section. Life of the squadron did not consist in the training only. It is proved by the Commander's Order dated October 16, 1943: *"Private First Class Bohuslav Nocar is hereby forbidden to sing in the neighbouring public houses. The reason: his behaviour and singing nauseate the present English audience and spoil the reputation of Czechoslovak troops in England."* It was no other than the future member of SILICA paradrops who was killed in action during operational flight over the territory of Italy on September 11, 1944.


S.V., dne 15./9.1943.
BRIG. TELEGR. CETA
BRIG. SIGNAL SECTION
DOŠLO: 17.9.43
Č.j. 304/43 PŘÍLOHY: 1

Having accomplished its basic training, the brigade moved to Southern Scotland and there, it continued in a highly demanding and hard training. Commanders were training in the command of tank units and their coordination by means of radio stations. They trained also the use of telephone for the communication of the tank crew with infantry which was installed in a metal


Telegrafní rota

Čj.666 Dův.-1943.
Věc: Návrh na změnu názvu SPOJOVACÍ ROTA.

SV.,3.říjen 1943.

DŮVĚRNÉ = CONFIDENTIAL

Vel.čs.sam.obrněné brigády,
1.oddělení,
SV.

Důvěrným rozkazem čs.sam.brigády r.1943,číslo 32,čl.62 a Sborníkem důvěrných výnosů MNO r.1943,číslo 13,čl.13 byl stanoven název nového útvaru telegrafního vojska čs.sam.obrněné brigády na SPOJOVACÍ ROTA anglicky BRIGADE SIGNALS COMPANY.

Hned po vyjití uvedeného důvěrného rozkazu zjistil jsem podle tabulek válečných počtů,že název setnin telegrafního vojska u obrněných velitelství jest squadron a ne company a toto jsem hlásil na 1.oddělení npor.děl.Kozeovi,který mi řekl že opravu zařídí.Toto se dopsud nestalo.

Dále navrhuji aby bylo upuštěno od českého názvu:SPOJOVACÍ ROTA a nařízeno TELEGRAFNÍ ROTA z těchto důvodů:

Spojovacími jednotkami/:četami,rotami,bateriemi atd:/podle našeho voj. názvosloví jsou spojovací jednotky vojenských útvarů pěchoty, dělostřelectva a jezdectva.

Při přidělení čet telegrafního vojska k útvarům/:tankový prap. 1 a 2,motopraporu,MPO:/dojde k mnohým záměnám a omylům neboť uvedené útvary mají své spojovací čety.

Z tohoto důvodu a z důvodu zachování tradice navrhuji aby spojovací rotě byl stanoven název TELEGRAFNÍ ROTA anglicky CZECHOSLOVAK BDE SIGNALS SQUADRON.

/:Úkolem telegrafního vojska jest udržovati spojení od HVOA až po velitelství vojskových těles a samostatných děl.oddílů, spojovacích jednotek - udržovati vnitřní spojení ve vlastní jednotce:/.

VELITELSTVÍ ČS. SAM. OBRNĚNÉ BRIGÁDY
CZECHOSLOVAK INDEP ARMD BDE GP HQ
DOŠLO DNE: ARRIVED ON: 4 OCT 1943
Čj No. 7287/dův. 1. odd. 194
PŘÍLOH: INCL: 0

Velitel roty

Spojovací rota,
S. V.

Vracím. Váš návrh na zavedení názvu "Telegrafní rota" zamítám. Zde v zahraničí nemáme žádné samostatné telegrafní vojsko, z jehož svazku by se přidělovaly samostatné telegrafní roty vyšším jednotkám.

Spojovací rota je přímo ve svazku čs. brigády, a že by snad mohlo dojíti k nějakým omylům při přidělování čet k útvarům není pravděpodobné.

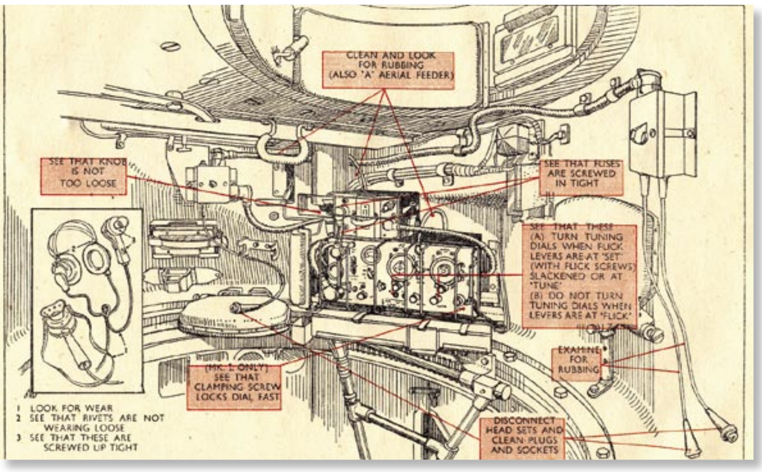
Jako anglického názvu užívějte "Czechoslovak Bde Signals Squadron", jak máte uvedeno také na svém přiděleném úředním razítku.

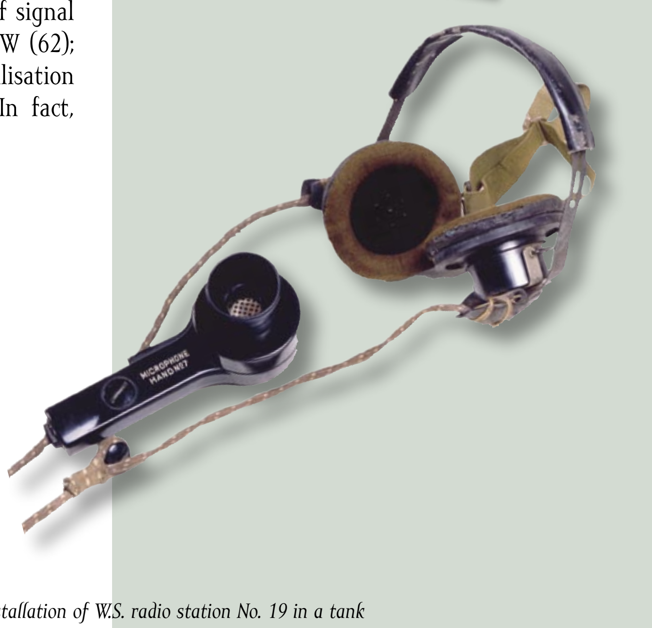
26/10 1943.

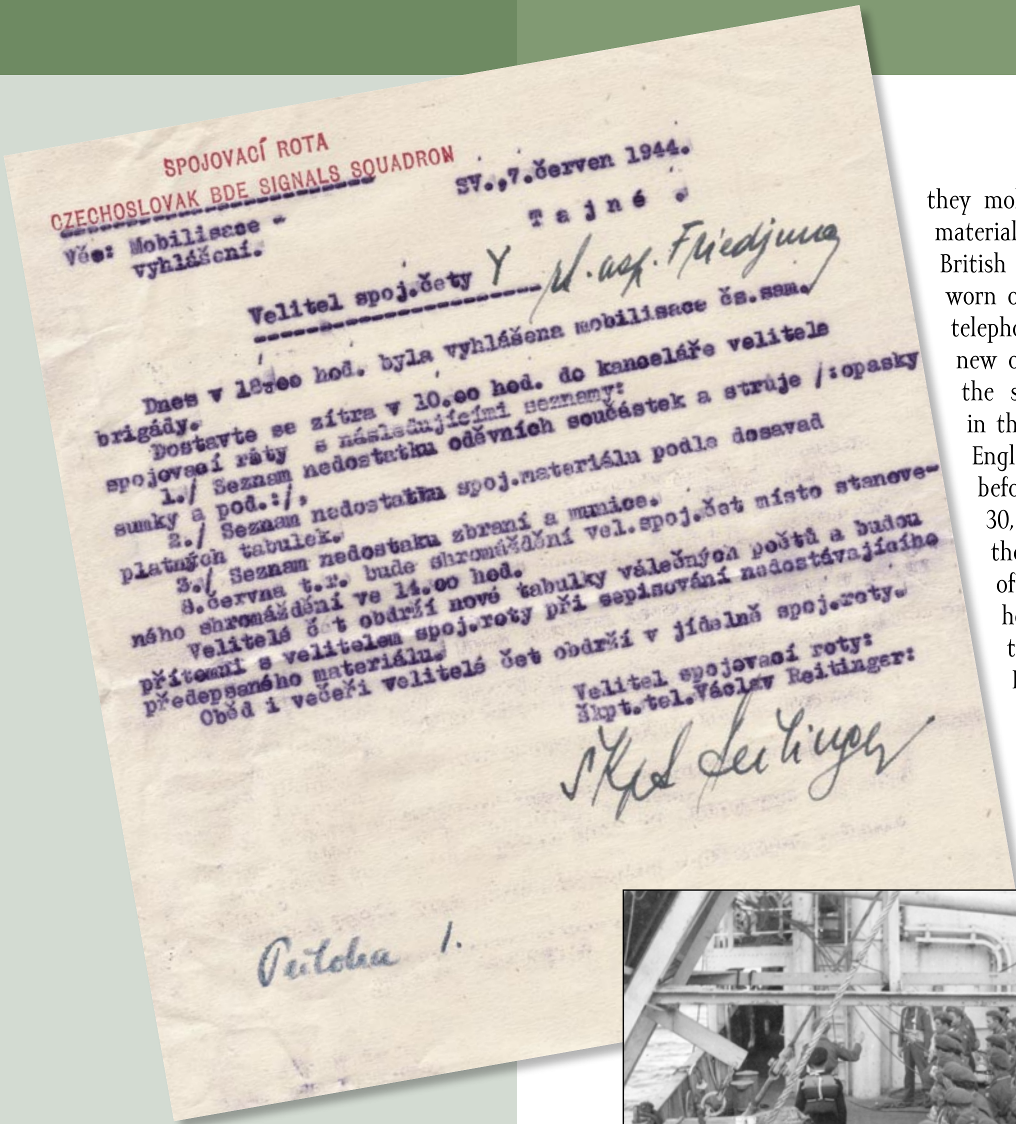

Rank and file quarters of the Signal Company in Oakley

box on rear side of engine compartment. The Brigade elaborated a permanent plan for establishing the communication during field exercise. The call signs and frequencies were changed but the plan remained valid, with some little changes, till the brigade departed for the front.

On June 6, 1944, after long preparation, the Allies disembarked in Normandy and started the decisive phase of World War II. Next day, the Czechoslovak Independent Armoured Brigade was put in the state of mobilisation readiness. On June 7, 1944, in the moment of mobilisation, the organisation of signal squadron was as follows: Headquarters Section (29 persons), Signal Sections W (62); X (15); Y (15); V (14) E (42) and R (5). It corresponded with the table of mobilisation strength of signal squadron which should make 4 officers and 178 men. In fact,




Installation of W.S. radio station No. 19 in a tank


SPOJOVACÍ ROTA
CZECHOSLOVAK BDE SIGNALS SQUADRON

SV.,7.červen 1944.

Tajné.

Věc: Mobilisace - vyhlášení.

Velitel spoj.čety Y pl.asp. Friedjung

Dnes v 18.00 hod. byla vyhlášena mobilisace čs.sam. brigády.

Dostavte se zítra v 10.00 hod. do kanceláře velitele spojovací roty s následujícími seznamy:

1./ Seznam nedostatku oděvních součástek a strúje /:opasky sumky a pod.:/,

2./ Seznam nedostatku spoj.materiálu podle dosavad platných tabulek.

3./ Seznam nedostaku zbraní a munice.

8.června t.r. bude shromáždění vel.spoj.čet místo stanoveného shromáždění ve 14.00 hod.

Velitelé čet obdrží nové tabulky válečných počtů a budou přítomni s velitelem spoj.roty při sepisování nedostávajícího předepsaného materiálu.

Oběd i večeři velitelé čet obdrží v jídelně spoj.roty.

Velitel spojovací roty:
škpt.tel.Václav Reitinger:

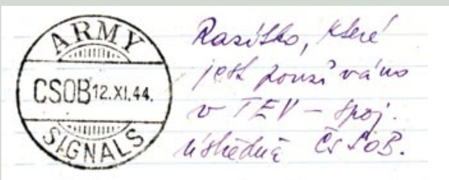
Příloha 1.

they mobilised 11 men less. The deficit in the material of the squadron was replenished from British stores together with the replacement of worn out communication equipment including telephone apparatus and radio stations for the new ones. At the beginning of August 1944, the signal squadron moved to Bridlington in the northern part of the eastern coast of England. It served for the final preparations before its departure for France. On August 30, 1944, the signal squadron embarked at the London Royal Albert Docks on the board of *Samos* ship of Liberty type and at 11.00 hours, it set sail for Thames estuary where they started to form a convoy.

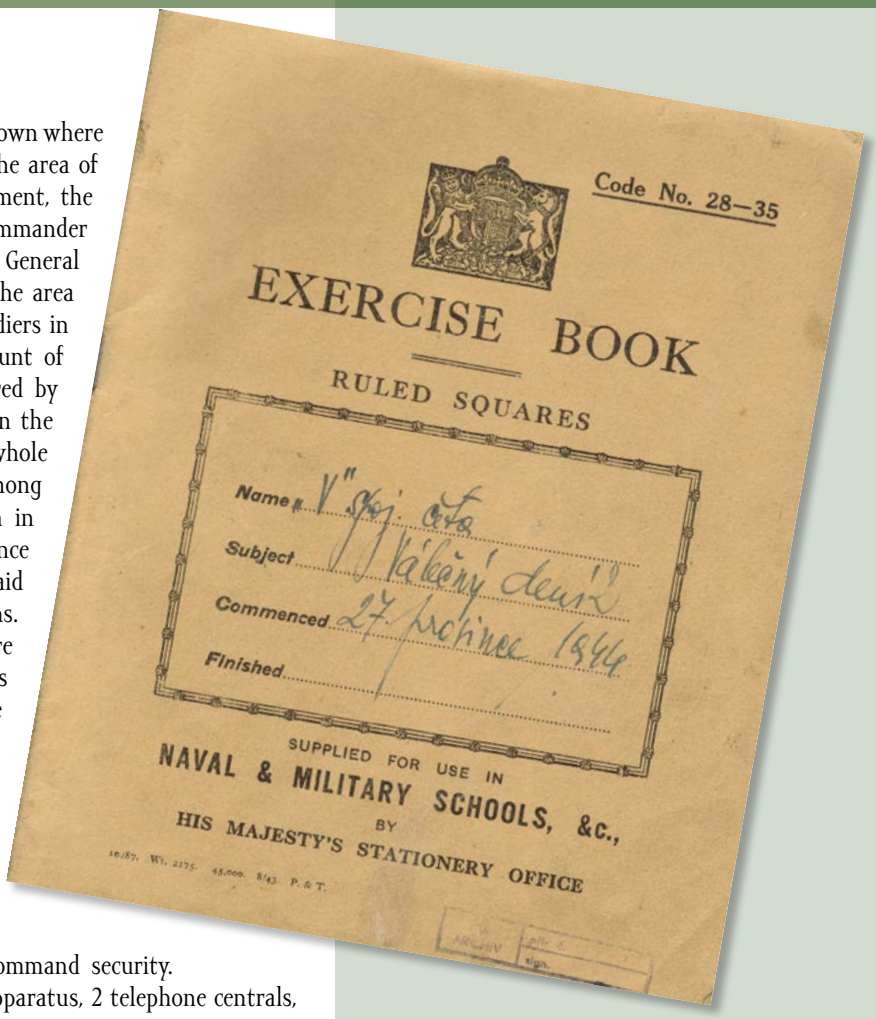
Having overcome the English Channel, the Signal Squadron started its disembarkation in the area between Draze sur Mer and Courseulles sur Mer in Normandy on September 2, 1944 at 09.00 hours. The whole brigade was


After four years, to France again

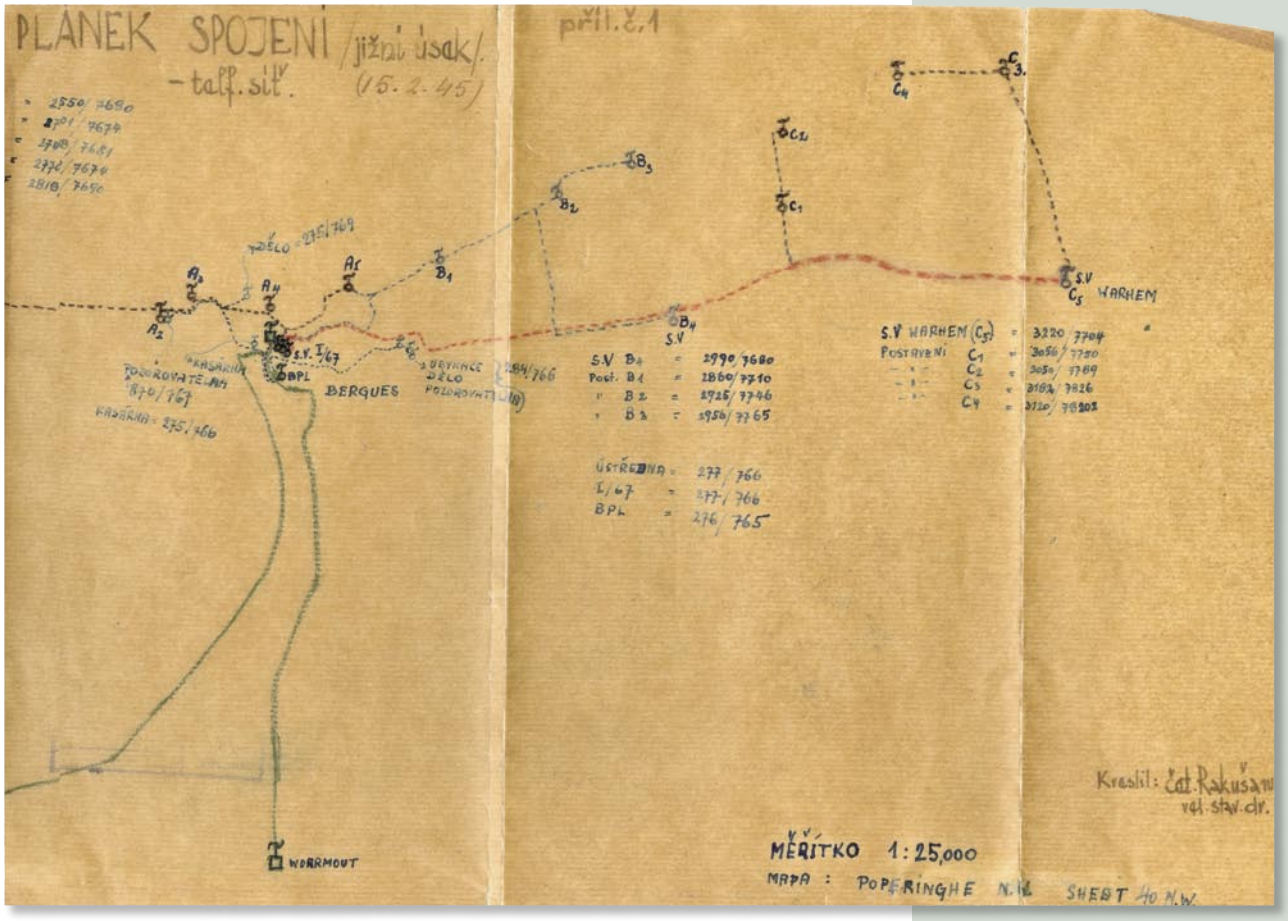

SPOJOVACÍ ROTA
CZECHOSLOVAK BDE SIGNALS SQUADRON
DOŠLO DNE: ARRIVED ON: 1. 6. 1944
CJ No. 419 PŘÍLOH: INCL.: ./.

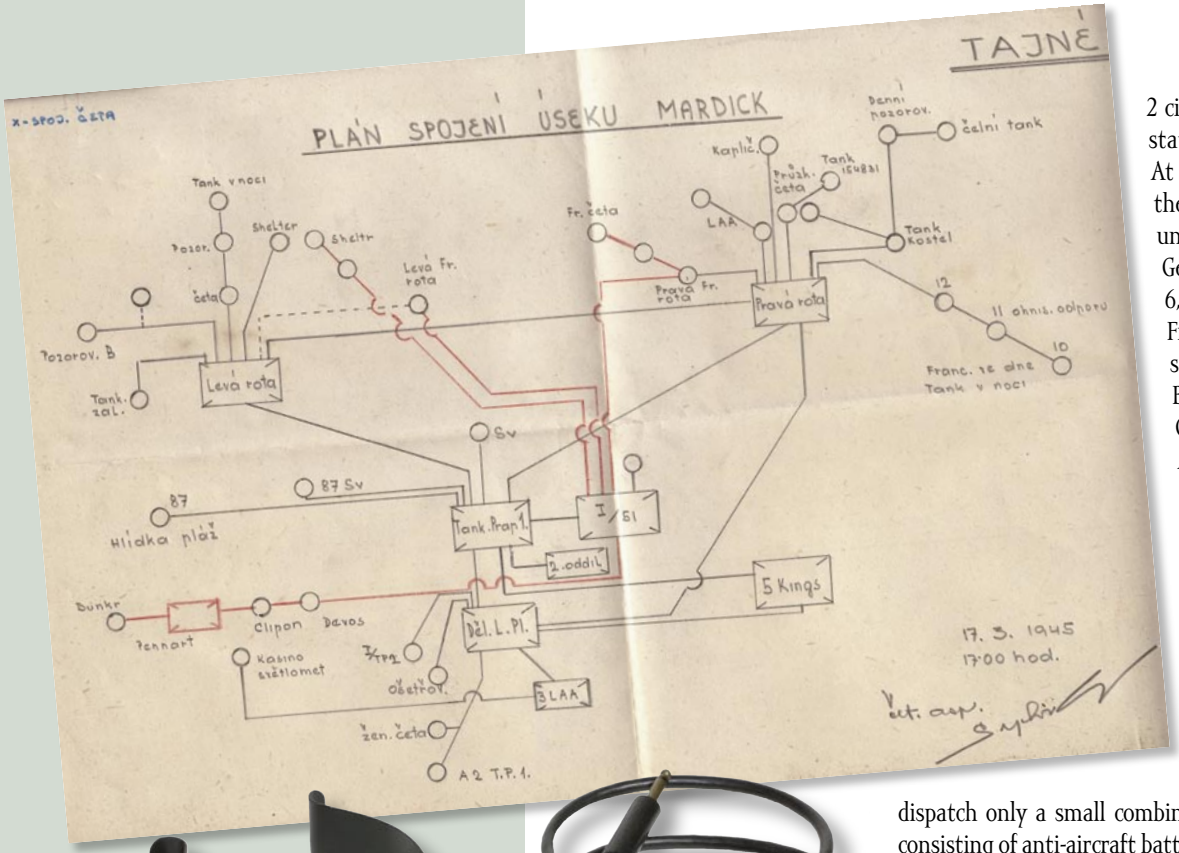


AEC Matador "Dorchester" - commander's armoured vehicle from a signal company formation



temporarily accommodated in a tent camp nearby Falaise town where it performed the tasks necessary before its transfer to the area of engagement. On October 6, 1944, after three-day movement, the brigade reached the area of French port of Dunkerque. Commander of the Czechoslovak Independent Armoured Brigade, Brig. General Liška became commander of all the units operating in the area of Dunkerque. There were more than 12,000 German soldiers in the beleaguered fortress disposing of considerable amount of armament and making use of all the possibilities offered by the nature, including the terrain flooded by sea water in the defence. In 1945, the signal squadron as well as the whole brigade were gradually replenished by volunteers from among Protectorate troops and captured German soldiers born in Sudeten region. Many soldiers who were demobilised in France in the year 1940 also enrolled again. The signal units laid field cable lines to all the units and installed radio stations. The battle for the fortress had a position-warfare nature but for the signalmen, it represented a continuous stress in maintaining the telephone lines in a failure-free state in the hard combat conditions. In addition to the Signal Sections X and Y trained for tank battalions; W – for the brigade headquarters; V – for motor battalion; E – for artillery regiment and R – for motorized reconnaissance unit, they formed Section Z for tank battalions and Section N for the 2nd echelon of the headquarters on the front. Moreover, there was also Section M – for workshop and Monitoring Section for the control of command security. The signal squadron disposed of 30 pieces of telephone apparatus, 2 telephone centrals,





2 cipher devices and 29 radio stations in total.

At the end of April 1945, the total strength of the units subordinate to Brig. Gen. Liška reached about 6,200 Czechoslovaks, 3,200 French and 2,000 British soldiers. In April 1945, Brig. Gen Liška asked the Commander of the 21st Army Group Marshall B.L. Montgomery for releasing the brigade from the front to be able to be transferred to the subordination of the 3rd American Army advancing towards Cheb. Marshall Montgomery did not comply with the request and allowed to dispatch only a small combined detachment. This unit, consisting of anti-aircraft battery, one motor platoon and one mortar squad, hoisted the flag on the Czechoslovak territory in Cheb. On May 8, 1945, commander of the fortress, Vice-Admiral Frisius agreed with surrender and, next day, he signed the surrender documents.

From May 12 to 20, 1945, the Czechoslovak Independent Armoured Brigade moved to the liberated motherland. Its combat route culminated at military dress parade in Prague on May 30, 1945. On June 1, 1945, the Brigade was combined with the 1st Czechoslovak Tank Brigade in the U.S.S.R. and was renamed to the 1st Tank Corps. On June 29, 1945, Commander of Signal Squadron, Telegraph Corps Major Václav Reitinger died a tragic death at a motorcar accident during his leave.

Combined Detachment before entering Cheb

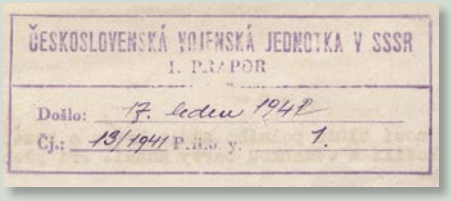
U.S.S.R.

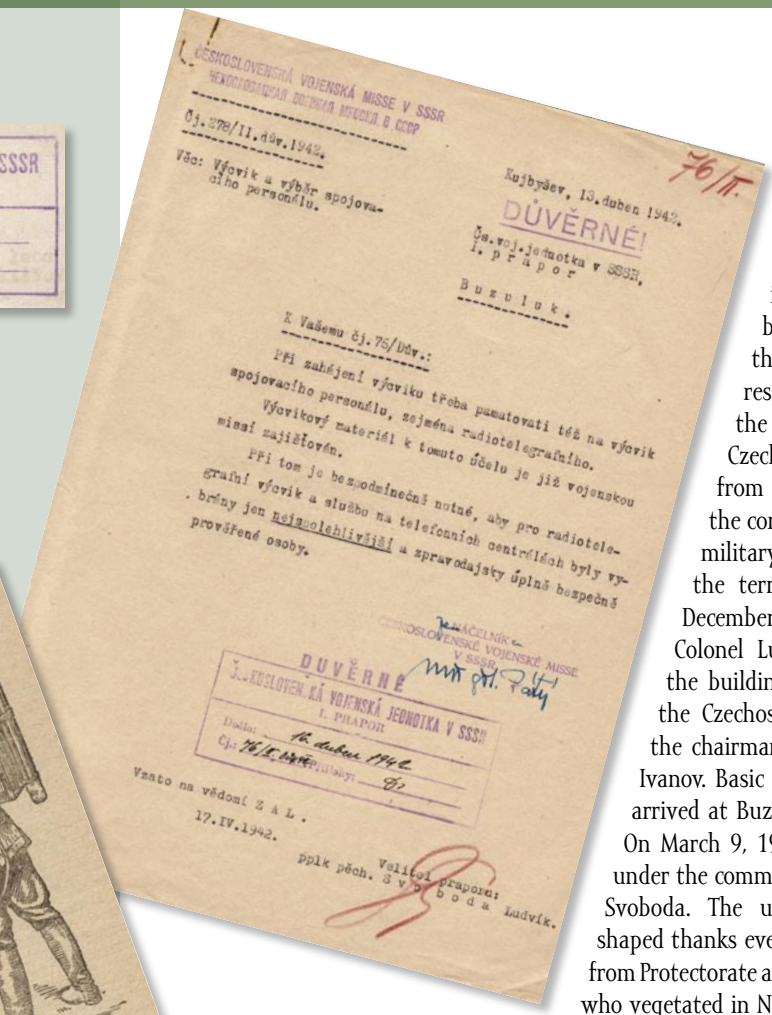
Czechoslovak officers interned in Suzdal.
(Third from left is standing Telegraph Corps Lieutenant Otakar Jaroš)

The same as in the years of World War I, the Czechoslovak Signal Corps achieved the largest strength in Russia, this time again. At the beginning of the year 1941, a group Czechoslovak soldiers constituting the initial Legion of Czechs and Slovaks in Poland was still in the Soviet detention camps. At the same time, Colonel GS Heliodor Píka arrived at Moscow as a plenipotentiary representative of Czechoslovakia in the position of the Chief of Military Mission of the Government of Czechoslovak Republic to the Government of the U.S.S.R. The Mission was allocated a villa nearby Moscow. In order to maintain communication with the Centre of Czechoslovak Resistance abroad, in Istanbul and for the intended communication with the resistance movement at home, the Mission disposed of one ZOE radio station. Its crew consisted of a group of wireless operators headed by Telegraph Corps Lieutenant Otakar Jaroš transferred from Suzdal. The situation markedly changed only after Nazis invaded the Soviet Union, on June 22, 1941. The Czechoslovak – Soviet Convention dated July 18, 1941, and Military Agreement, dated September 27, 1941, became legal basis for the origin of Czechoslovak military units on the territory of the U.S.S.R. According to the agreements, the units were part of the Czechoslovak Republic's Armed Forces which, together with Defence Force of the Soviet Union and other allied countries, participated in the combat against Hitler's Germany. Operatively, they were subordinated to the Soviet Supreme Commands but, in organisational and personnel matters, they were subordinate to the Commander-in-Chief of Czechoslovak Defence Force. The Czechoslovak Military Mission in the U.S.S.R. headed by Col. GS Píka secured the coordination with the exile MOND in London. Members of Czechoslovak units on the Soviet territory were subject

Attacking German tank units

German signal troops, equipped with radio vans of "Einheits-Diesel" type, penetrated deep into the Soviet territory





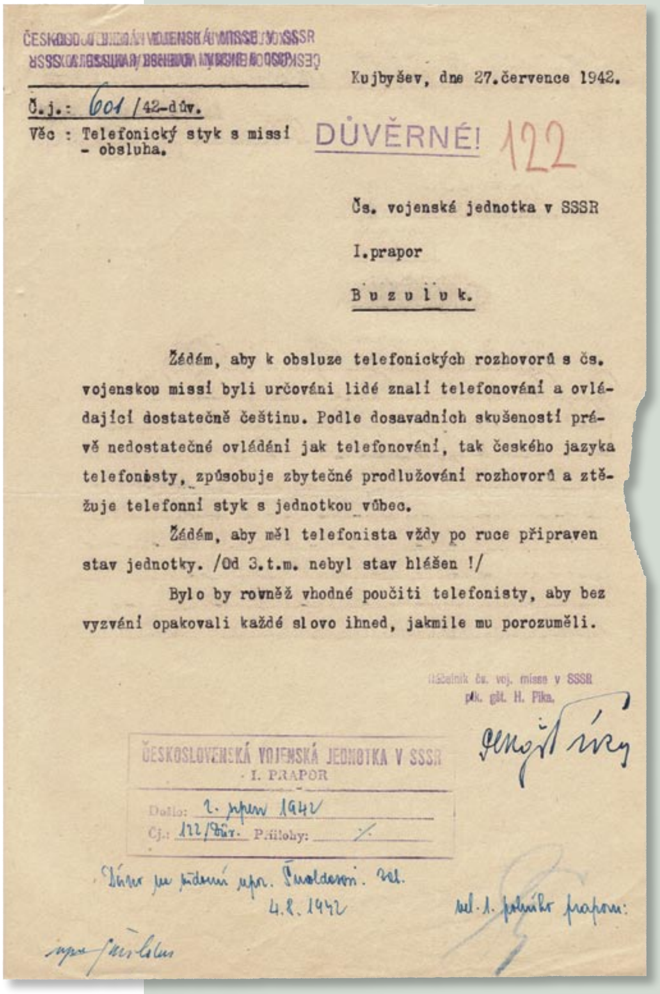
Soviet textbooks for wireless operators

to Czechoslovak laws and regulations.

The group of 90 members of the Legion of Czechs and Slovaks in Poland, complemented by the recruitment of the Czechoslovak citizens resident of the territory of the U.S.S.R. on the basis of the Czechoslovak-Soviet agreement from September 1941 became the core of the first Czechoslovak military unit organized on the territory of the U.S.S,R. On December 12, 1941, Infantry Lt. Colonel Ludvík Svoboda took over the buildings for accommodation of the Czechoslovak military unit from the chairman of Buzuluk Town Soviet Ivanov. Basic group of the formed unit arrived at Buzuluk on February 5, 1942. On March 9, 1942, they started training under the command of Infantry Lt. Colonel Svoboda. The unit gradually grew and shaped thanks even to the arriving refugees from Protectorate and Sub-Carpathian Ukraine who vegetated in NKVD camps till now.

Since its beginning, the Headquarters Company of the 1st Battalion of the Czechoslovak military unit in the U.S.S.R. included also a signal platoon consisting of 20 men under the command of WO Kurt Fanta-Frucht. In the middle of July, 1942, the signal platoon, which became a basis of the Czechoslovak Signal Corps in the Soviet Union, consisted of 18 men and 1 woman. The platoon was organised as follows: platoon leader, one squad of telephone exchange, three squads of linemen, two radio squads and two despatch runners. Training and activity of the signal platoon was controlled by the Commander of Headquarters Company Telegraph Corps First Lieutenant Miroslav Šmoldas who was also in the position of Battalion Engineer and later on, Battalion Signal Officer. Since the beginning, the representatives of Czechoslovak Military Mission in the U.S.S.R. emphasized the importance of training of the signal troops. They were aware namely of the significance of radio communication in the course of the war which was applied to the level of company commander in infantry units and to the level of platoon leader or squad leader in mechanized, tank or other special units. Modern conduct of war planned, among other things, a massive use of radio stations. However, during the first months, the signal platoon did not dispose of any material and its training had to be concentrated on theoretical lessons only. The first training aids were made in a self-help way by the members of the platoon. Without armament and equipment the training of the whole battalion became very complicated. At the beginning of June 1942, the battalion borrowed 2 mortars, 2 heavy machineguns, 2 light machineguns, 35 rifles and also 8 pieces of telephone apparatus from the Garrison Command at least for one week.

On July 15, 1942, organisation of the first Czechoslovak military unit on the territory of the Soviet Union was accomplished. Since that day, it used the name – 1st Czechoslovak Detached Field Battalion in the U.S.S.R. In this connection, the Battalion Signal Platoon was also reorganized. Signal Platoon of the 1st Czechoslovak Detached Field Battalion in the U.S.S.R had


ČESKOSLOVENSKÁ VOJENSKÁ MISSE V SSSR

Kujbyšev, dne 27.července 1942.

Č.j.: 601 /42-dův.

Věc : Telefonický styk s missí - obsluha.

DŮVĚRNÉ! 122

Čs. vojenská jednotka v SSSR

I.prapor

B u z u l u k.

Žádám, aby k obsluze telefonických rozhovorů s čs. vojenskou missí byli určováni lidé znalí telefonování a ovládající dostatečně češtinu. Podle dosavadních skušeností právě nedostatečné ovládání jak telefonování, tak českého jazyka telefonisty, způsobuje zbytečné prodlužování rozhovorů a ztěžuje telefonní styk s jednotkou vůbec.

Žádám, aby měl telefonista vždy po ruce připraven stav jednotky. /Od 3.t.m. nebyl stav hlášen !/

Bylo by rovněž vhodné poučiti telefonisty, aby bez vyzvání opakovali každé slovo ihned, jakmile mu porozuměli.

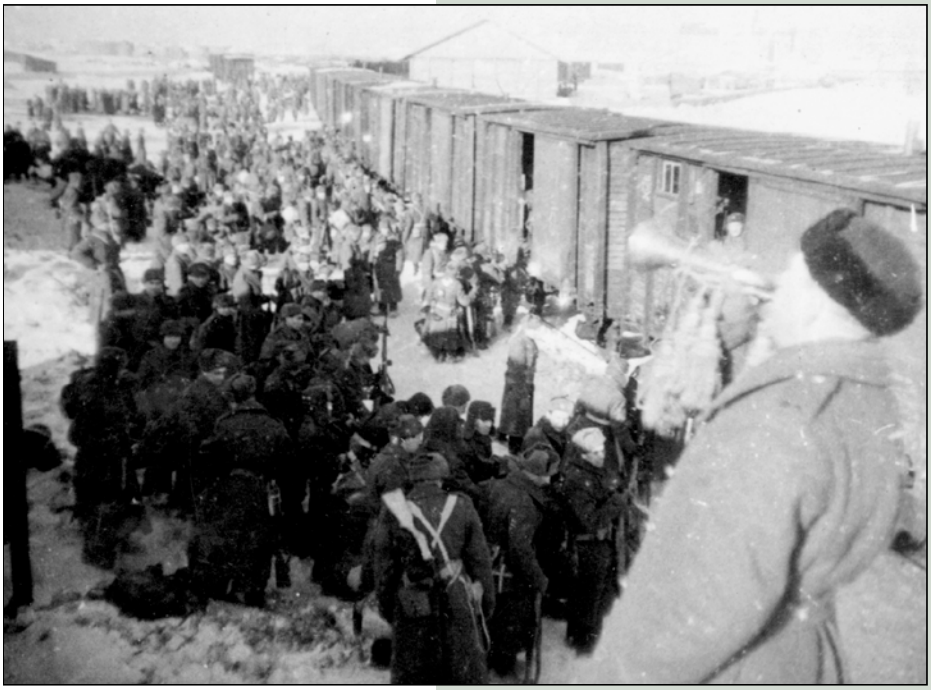
Náčelník čs. voj. misse v SSSR
plk. gšt. H. Píka.

ČESKOSLOVENSKÁ VOJENSKÁ JEDNOTKA V SSSR
I. PRAPOR
Došlo:
Čj.:
Přílohy:

new Headquarters Squad and Telephone Squad (41 male and female in total). According to tables of equipment, it should have 2 RB-38 radio stations, 5 RBS radio stations and 12 pieces of telephone apparatus. However, the platoon received the full amount of the communication material only shortly before the battalion left for the front. After reorganization, the platoon continued in an intensive training with the equipment it had in disposal. On October 8, 1942, they established a course for wireless operators. Several days later, on October 19, 1942, the battalion finally received weapons and its training could be more intensive. On November 24, 1942, Infantry Colonel Svoboda reported to the President Edvard Beneš and to Minister of National Defence Div. General Sergej Ingr that the 1st Czechoslovak Detached Field Battalion will reach combat readiness for the departure for the front on December 9, 1942 at 24.00 hours. At the beginning of December 1942, the battalion executed tactical exercise on the eyes of Red Army Inspection Commission. All the soldiers, including the members of signal platoon were assessed – very good. January 8, 1943, was the long-expected moment. Signal platoon received 6 RBS radio stations and 3 RB-38 radio stations. The same day, they organised further course for wireless operators under the command of Telegraph Corps First Lieutenant Šmoldas and the course for telephone operators under the command of newly appointed leader of the signal platoon, Telegraph Corps Second Lieutenant David Steiner. Departure for the front was approaching every day. On January 27, 1943, Infantry Colonel Svoboda took over unit colours from the hands of Colonel GS Píka in Buzuluk. On January 30, 1943, at 17.30 hours, Signal Officer of the Battalion issued a Communication Order for the echelon. It was the first Communication Order for the organisation and provision of communication during the transport by train to the front. At 17.15 hours, the battalion departed for the front.

On February 20, 1943, the Battalion Signal Officer issued an Order for marching. Signal units organized radio network between battalion headquarters and the commanders of infantry companies using small RBS radio stations. On March 3, 1943, Chief of Defence of the area of Kharkov city, Lt. General Kozlov issued an Order for the 1st Czechoslovak Detached Field Battalion to take up a defensive position in the area of Sokolovo. The same day, in connection with the movement, they issued Communication Order for the defence which included provision of communication during defence battle in the area of Sokolovo. Primary mission of the signal platoon was to provide communication on a large front in very unfavourable weather conditions. Battalion Headquarters (marked by a code name – KARANDASH) maintained communication with Soviet units and namely with the 1st Company (OLGA), 2nd Company (NATASHA) and 3rd Company (NADIA). Forward operating defence was allocated to the 1st Company headed by Telegraph Corps First Lieutenant Otakar Jaroš

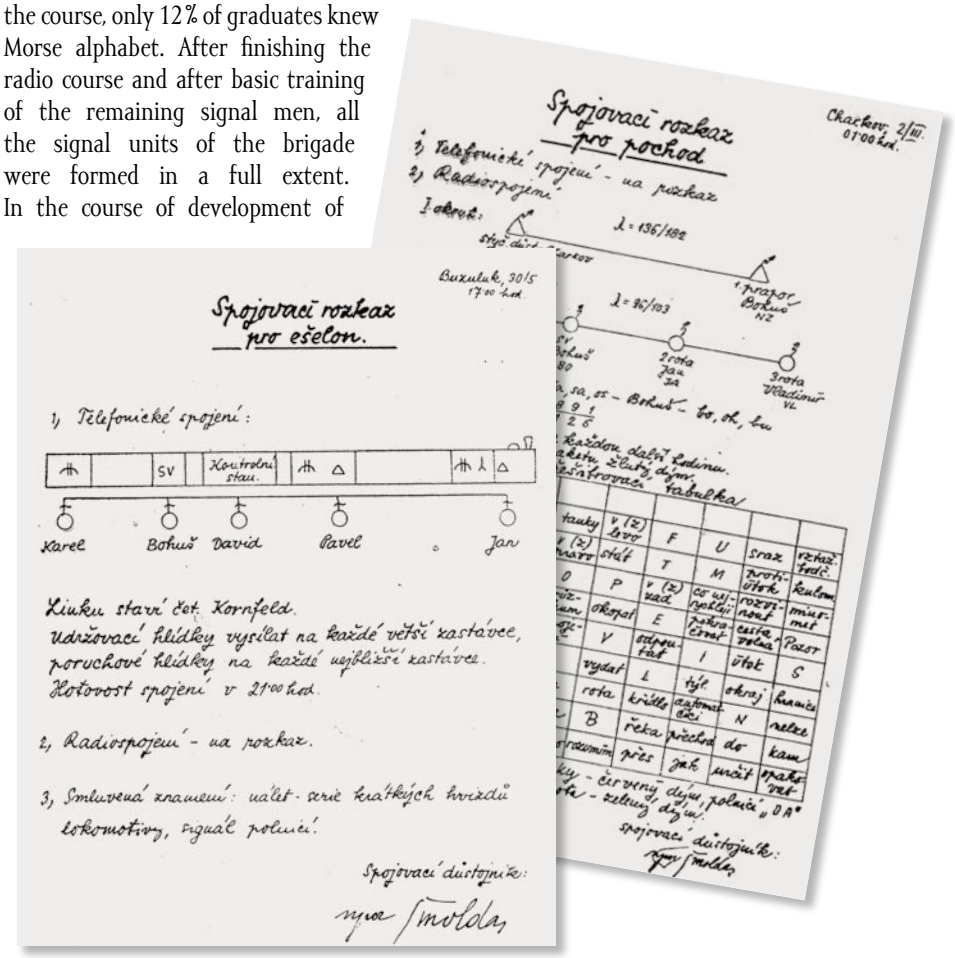
he decided to use the steeple of the local church as his command and observation post. Private First Class Hugo Redisch executed the function of observer and telephone operator of the Commander of 1st Company. Both of them were killed in the heroic defence of the church on March 8, 1943. Telephone operator of the signal platoon Private Kurt Steiner was killed in action the same day and wireless operator Private First Class Pavel Fiala was



Departure from Buzuluk

killed one day later. Telephone operator of the signal platoon Private Emil Ketner was also killed in action in the battle by Sokolovo. The battle by Sokolovo was the first hard combat test of the Czechoslovak troops in the Soviet Union. Unfavourable weather conditions and nearly continuous mortar fire made the activity of signal men more difficult so that they could maintain the telephone lines to individual companies only with great effort. Radio operators also achieved considerable success providing continuous communication with the headquarters of superior 25th Guards Rifle Division, with neighbouring and subordinate units. Moreover, they acquired a number of valuable information by monitoring the enemy stations. When some parts of the battalion were enclosed during the retreat and there was no way how to save the communication means and other material, majority of the communication equipment was destroyed by order. However, radio operators succeeded to save the most valuable equipment – the two RB-38 radio stations; they succeeded in carrying the station off the enemy encirclement

After the battle by Sokolovo, the battalion was withdrawn from the front to be replenished up to war strength. Based on the decision of the Czechoslovak-Soviet Mixed Commission, dated April 29, 1943, the 1st Czechoslovak Detached Field Battalion was reorganised to the 1st Czechoslovak Independent Brigade in the U.S.S.R. The place of the formation of the Brigade was Novokhopersk where the members of the Czechoslovak Replacement Regiment, born in Buzuluk, were moved in May 1943 as well. Members of Signal Platoon of the 1st Czechoslovak Detached Field Battalion became the basis for the formation of Signal Corps of the 1st Czechoslovak Independent Brigade. Training of the signal men started immediately after their arrival at Novokhopersk. It was necessary to train the signal units in the provision of communication for all the formation within the shortest possible time. The brigade received communication equipment in nearly full extent immediately after establishing the signal units of individual formations. Each signal unit had attached one or two skilled members of the Signal Platoon of the 1st Czechoslovak Detached Field Battalion. Training of a sufficient number of wireless operators, for whom they established a six-week radio course for phonic and radio telegraph operation, was the biggest problem. Before opening the course, only 12% of graduates knew Morse alphabet. After finishing the radio course and after basic training of the remaining signal men, all the signal units of the brigade were formed in a full extent. In the course of development of



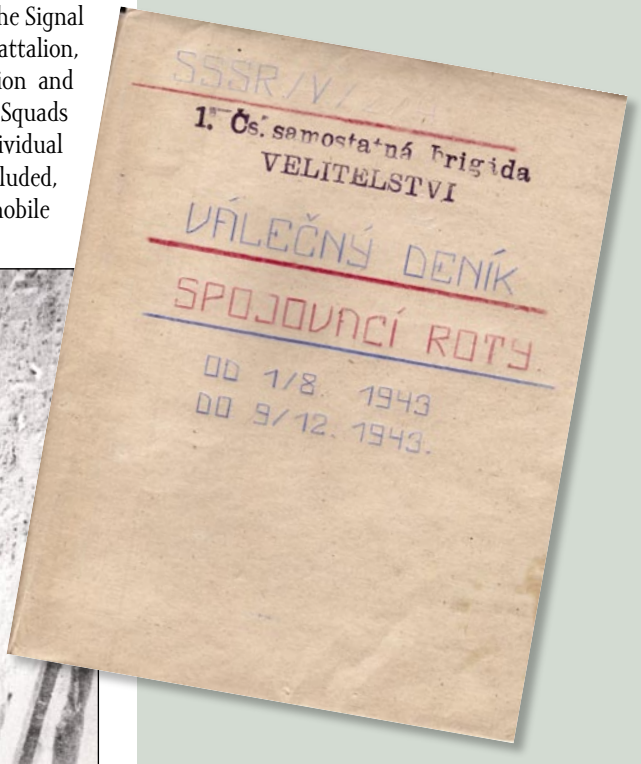
First Lieutenant (Captain in memoriam) Otakar Jaroš (*1912-†1943)

In 1934, Otakar Jaroš graduated from Electrical Engineering College in Prague. The same year, he entered military service at Telegraph Battalion No. 3 in Trnava. In 1936, he was admitted to voluntary active military service and began studying at Military Academy in Hranice. In 1937, after graduation from the academy, he was promoted to the rank of Lieutenant of Telegraph Troops and became Second-in-Command of Telegraph Replacement Company of the Telegraph Battalion No. 4 in Prešov. In August 1939, he went illegally to Poland and was registered in the newly formed Czechoslovak unit. In September 1939, he was interned in Soviet NKVD camps. In Suzdal Camp, he served as signal platoon leader. In 1941, he operated ZOE radio station working within the newly established Military Mission in Moscow in the U.S.S.R. In October 1941, he was promoted to First Lieutenant of Telegraph Troops. In February 1942, he was appointed Commander of the 1st Company of Czechoslovak Unit in Buzuluk and in September 1942, he was transferred to the group of career officers. On March 8, 1943, he was killed in action in the battle of Sokolovo. He was the first foreigner awarded the title of The Hero of the U.S.S.R

KOF 6 – telephone switchboard

the brigade, members of Slovak Mobile Division, who were captured, gradually arrived at Novokhopersk. They had many trained signalmen who strengthened the signal units of the brigade.

The 1st Czechoslovak Independent Brigade in the U.S.S.R. was organised in Novokhopersk on July 7, 1943. The same day, the Signal Corps of the Brigade was practically ready to perform the combat tasks and it was accomplishing the final phase of training. The training of the Signal Corps as a whole was controlled by the Chief of the 3rd (Signal) Division of the Brigade Headquarters and Commander of Signal Company of the Brigade personally. The Signal troops of the Brigade included the Brigade Headquarters Signal Units consisting of Brigade Signal Company, Brigade Communication Workshops and Brigade Field Post Office and the Signal units of the formations represented by the Signal Platoon of the 1st Infantry Battalion, Signal Platoon of the 2nd Infantry Battalion, Signal Platoon of Tank Battalion, Signal Platoon of the 1st Artillery Battalion and Signal Platoon of the 2nd Artillery Battalion. Other units included the Signal Squads of Mortar Batteries and Infantry Battalions, Anti-Aircraft Gun Batteries and individual batteries of artillery battalions. Communication equipment of the brigade included, beside other things, 35 radio stations, 100 pieces of telephone apparatus, mobile



Brigade HQ Telephone Exchange operator

workshop and radio van. Signal units of the brigade employed also females as radio operators, telephone central operators and various other positions. Only the Signal Company of the Brigade employed 16 females who belonged to the best graduates of the radio course.

On October 1, 1943, the first transport with the brigade units aiming at the front departed from Novokhopersk railway station. Signal units provided communication during loading and inside individual railway sets. The 1st Czechoslovak Independent Brigade was deployed in the area of Kiev. Czechoslovak units were committed to action in the area of Kiev on November 3, 1943. In the battle for Kiev, the hard training which the signal men passed through in Novokhopersk proved useful. For the first time, they provided communication during attack, in the situation when the assault echelons advanced quickly forward and there was a need to follow them while deploying the telephone lines. The line communication was not enough to follow the rapid advance of the assault echelons and the tasks of telephone operators were gradually taken over by radio operators. After liberation of Kiev, the brigade participated in chasing the enemy and in defensive battles in the area of Fastov and Vasilkov.

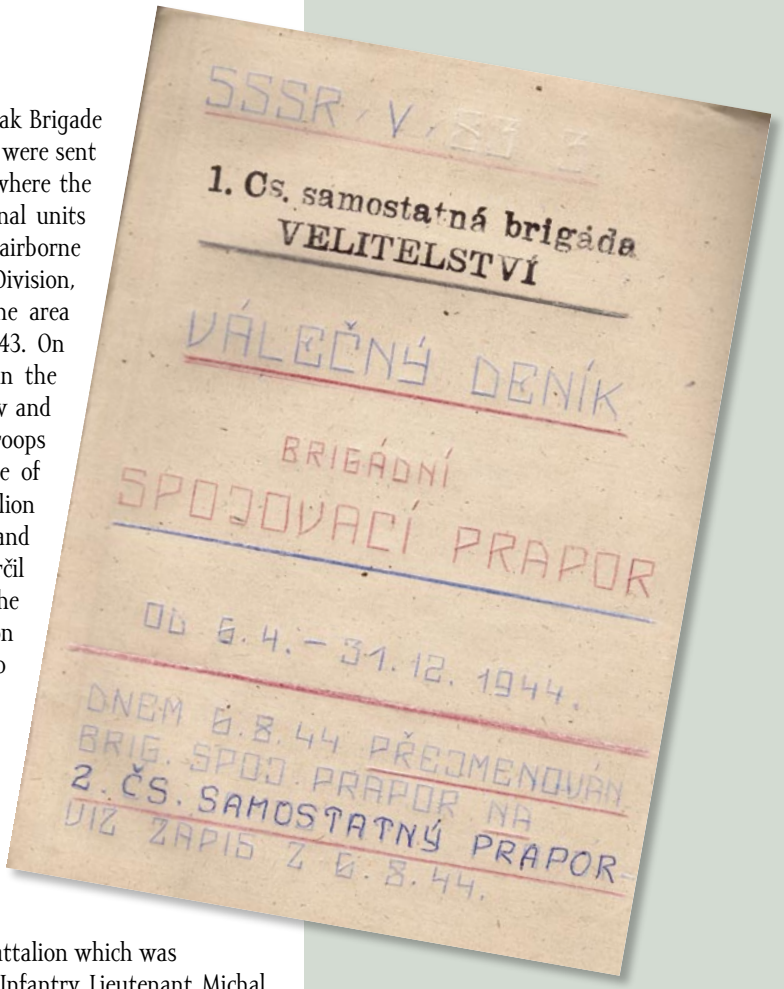
New Chief of the 3rd Division of the Brigade Headquarters, Telegraph Corps First Lieutenant František Skokan who was commander of the Telegraph and Code Group at the Czechoslovak Military Mission in Jerusalem and replaced the Chief of Division Telegraph Corps Captain Šmoldas. Commanders of Signal Units and Signal Officers of individual formations quickly acquired skills in the organisation of communication under complicated conditions on the Eastern Front.

After Kiev operation, they made an assessment of the use of individual communication means. It was proved that the existing conception of the communication organisation, when the system is based on line communication means is not sufficient for the future. It held namely for the offensive operations when the main load was transferred to radio stations. Improvement of the radio communication was required by the Brigade Commander Infantry Colonel Svoboda. Regarding the fact that there were communication failures during the initial phase of the battle, he ordered the Chief of Staff and the Chief of the 3rd Division to make an analysis of the total situation in the communication during the battles for Kiev and Vasilkov. Beside other things, the analysis stated: *"The failures that occurred during the battle for Kiev and in other operations were caused by the following circumstances namely:*

1. *Telephone communication. Advancement of the units towards Kiev was so rapid that the signalmen, using the existing equipment, could only install the lines behind the advancing battalions and they were not able to maintain the 38 km-long lines. In many cases, the maintenance teams, repairing the lines, met the signalmen of other units who got confused in the large number of the lines built in one place and they dismantled our lines ... The fact that the signal units were not able to manage the maintaining of lines behind battalions was not caused due to lack of training but due to practical impossibility to maintain the line communication at so rapid advance.*
2. *Radio communication. According to the Soviet regulations, the radio stations, which we are equipped with, are enough to provide communication between regiment and battalion, but their range is not enough to provide communication of our detached battalions with the Brigade Headquarters ..."*

At the turn of the years 1943 and 1944, the brigade participated in heavy battles in the area of Byelaya Tserkev and subsequent defence operations in the surrounding of Zhashkov. All the members of Signal Troops also took part in the combat success

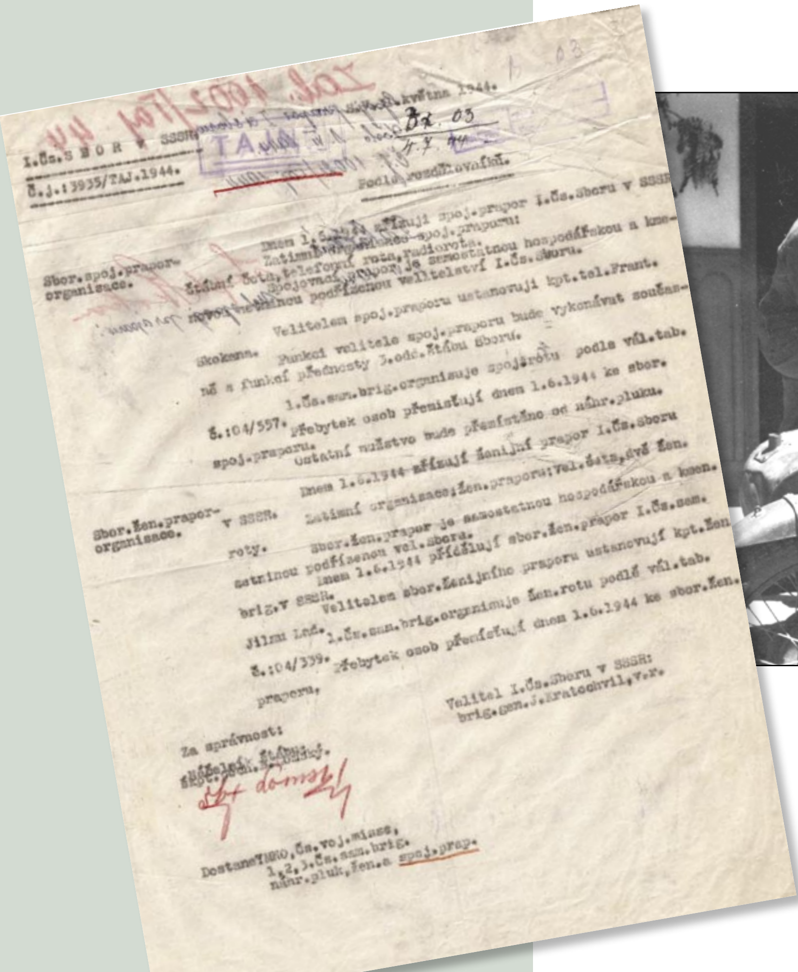
RB radio station operator



of the Brigade. During the engagement of the 1st Czechoslovak Brigade in the battle at Zhashkov already, the experienced instructors were sent to Yefremovo where 2nd Airborne Brigade was formed and where the Replacement Regiment was located as well. Members of signal units were also included among the instructors. The core of the airborne brigade consisted of the soldiers of the 1st Slovak Infantry Division, counting nearly two thousand men, who surrendered in the area of Melitopole and passed to Soviet captivity in October 1943. On March 7, 1944, the 1st Czechoslovak Independent Brigade in the U.S.S.R. withdrew from the front line in the area of Zhashkov and moved to the liberated Volhynia where the Czechoslovak Troops in the Soviet Union should pass through the further phase of formation. On April 6, 1944, they formed Brigade Signal Battalion consisting of Headquarters Platoon, Telephone Company and Radio Company. Infantry Second Lieutenant Stanislav Odstrčil was appointed commander of the battalion disposing of the strength of 190 males and females. On April 22, the battalion formed its training Company. Till April 27, 1944, thanks to arrival of newcomers, the strength of the battalion grew up to 340 males and females. On June 1, 1944, with regard to gradual departures of the soldiers to other units, the strength decreased to 159 males and females and the unit was again reorganized to Signal Company under the temporary command of Infantry Second Lieutenant V. Krumholz who replaced the Infantry Second Lieutenant Odstrčil after his departure to Army Corps. Two months later, on August 1, 1944, the company was again reorganized to Brigade Signal Battalion which was given a definite name of 2nd Independent Signal Battalion. Infantry Lieutenant Michal Pohoriljak was appointed commander of the battalion.

On April 10, 1944, People's Commissariat of the U.S.S.R. and the Main Staff of Red Army issued a Memorandum concerning establishment of the 1st Czechoslovak Army Corps in the U.S.S.R. Thanks to it, in spring 1944, all the Czechoslovak military units in the U.S.S.R. were moved to the area of Černovice, Kamenec Podolski and Proskurov in Western Ukraine where they began formation of the Corps. The 1st Czechoslovak Independent Brigade in the U.S.S.R., complemented namely by Volhynian Czechs, became the core of the Corps. The Army Corps was built according to Soviet tables of organisation based on the Order of Soviet Supreme Command, dated May 5, 1944. The 2nd Czechoslovak Independent Airborne Brigade in the U.S.S.R., 3rd Czechoslovak Independent Brigade in the U.S.S.R. and the 1st Czechoslovak Independent Tank Brigade in the U.S.S.R. were gradually attached to the structure of the Corps.

Training with RB radio station in Černovice



I.Čs.S B O R v SSSR. … května 1944.

Č.j.:3935/TAJ.1944.

Podle rozdělovníku.

Sbor.spoj.prapor-organisace.

Dnem 1.6.1944 zřizuji spoj.prapor I.Čs.sboru v SSSR.

Zatímní organisace spoj.praporu: Štábní četa, telefonní rota, radiorota.

Spojovací prapor je samostatnou hospodářskou a kmenovou jednotkou podřízenou velitelství I.Čs.sboru.

Velitelem spoj.praporu ustanovuji kpt.tel.Frant. Skokana. Funkci velitele spoj.praporu bude vykonávat současně s funkcí přednosty 3.odd.štábu sboru.

1.čs.sam.brig.organisuje spoj.rotu podle vál.tab. č.:04/557. Přebytek osob přemisťují dnem 1.6.1944 ke sbor. spoj.praporu.

Ostatní mužstvo bude přemístěno od náhr.pluku.

Sbor.žen.prapor-organisace.

Dnem 1.6.1944 zřizuji ženijní prapor I.Čs.sboru v SSSR.

Zatímní organisace žen.praporu: vel.četa, dvě žen. roty.

Sbor.žen.prapor je samostatnou hospodářskou a kmenovou jednotkou podřízenou vel.sboru.

Dnem 1.6.1944 přiděluji sbor.žen.prapor I.Čs.sam. brig.v SSSR.

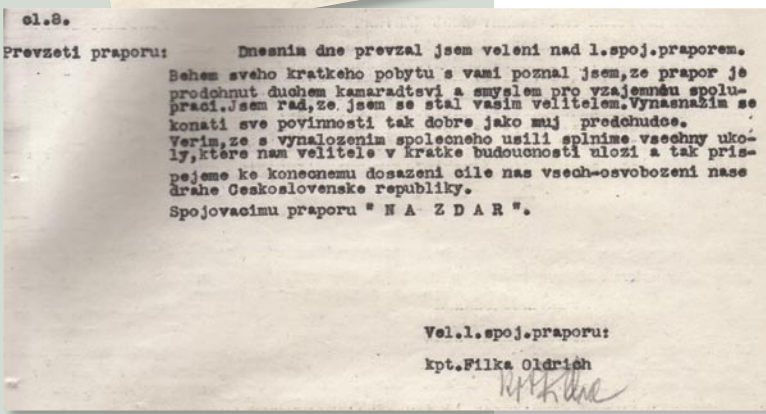
Velitelem sbor.ženijního praporu ustanovuji kpt.žen. Jilma Led.

1.čs.sam.brig.organisuje žen.rotu podle vál.tab. č.:04/339. Přebytek osob přemisťuji dnem 1.6.1944 ke sbor.žen. praporu.

Velitel I.Čs.sboru v SSSR:
brig.gen.J.Kratochvil,v.r.

Za správnost:
Náčelník štábu:

Dostane: MNO, Čs.voj.mise, 1,2,3.Čs.sam.brig. náhr.pluk, žen.a spoj.prap.



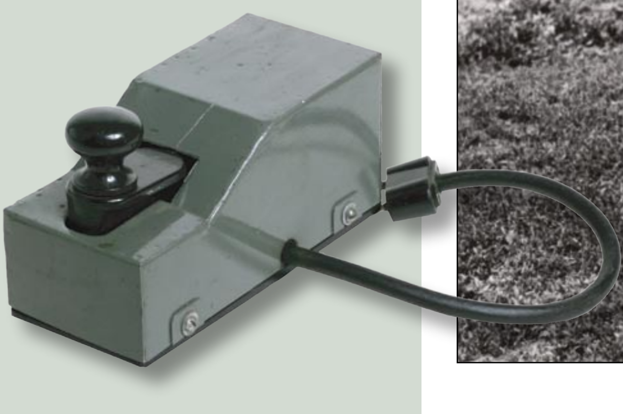
cl.8.

Prevzeti praporu: Dnesnim dne prevzal jsem veleni nad 1.spoj.praporem. Behem sveho kratkeho pobytu s vami poznal jsem,ze prapor je prodchnut duchem kamaradtsvi a smyslem pro vzajemnou spolupraci.Jsem rad,ze jsem se stal vasim velitelem.Vynasnazim se konati sve povinnosti tak dobre jako muj predchudce. Verim,ze s vynalozenim spolecneho usili splnime vsechny ukoly,ktere nam velitele v kratke budoucnosti ulozi a tak prispejeme ke konecnemu dosazeni cile nas vsech-osvobozeni nase drahe Ceskoslovenske republiky.
Spojovacimu praporu " N A Z D A R ".

Vel.1.spoj.praporu:
kpt.Filka Oldrich

Dispatch rider using M-72 motorcycle

Organisation of signal troops of the Army Corps emphasized namely the provision of reliable communication of the commanders of regiments and divisions at any situation and from any place. Massive use of artillery, tank units and mechanized divisions resulted in the necessity of perfect coordination communication, namely between infantry, artillery and tanks. Messengers equipped with motor cycles, automobiles and, beginning from division-level, also with liaison airplanes, were important part of the system. Majority of the signal officers and commanders of signal units of individual formations were young members of signal units of the 1st Czechoslovak Brigade who achieved experience in practical provision of communication in combat but they had no theoretical knowledge in the management of communication organisation. Assistance of Red Army was required namely in solving the theoretical questions concerning the organisation of communication in the Airborne and Tank Brigades because no member of signal troops of the Army Corps had enough experience in the organisation of communication in the Tank and Airborne Troops. On June 1, 1944, they established Signal Battalion of the 1st Czechoslovak

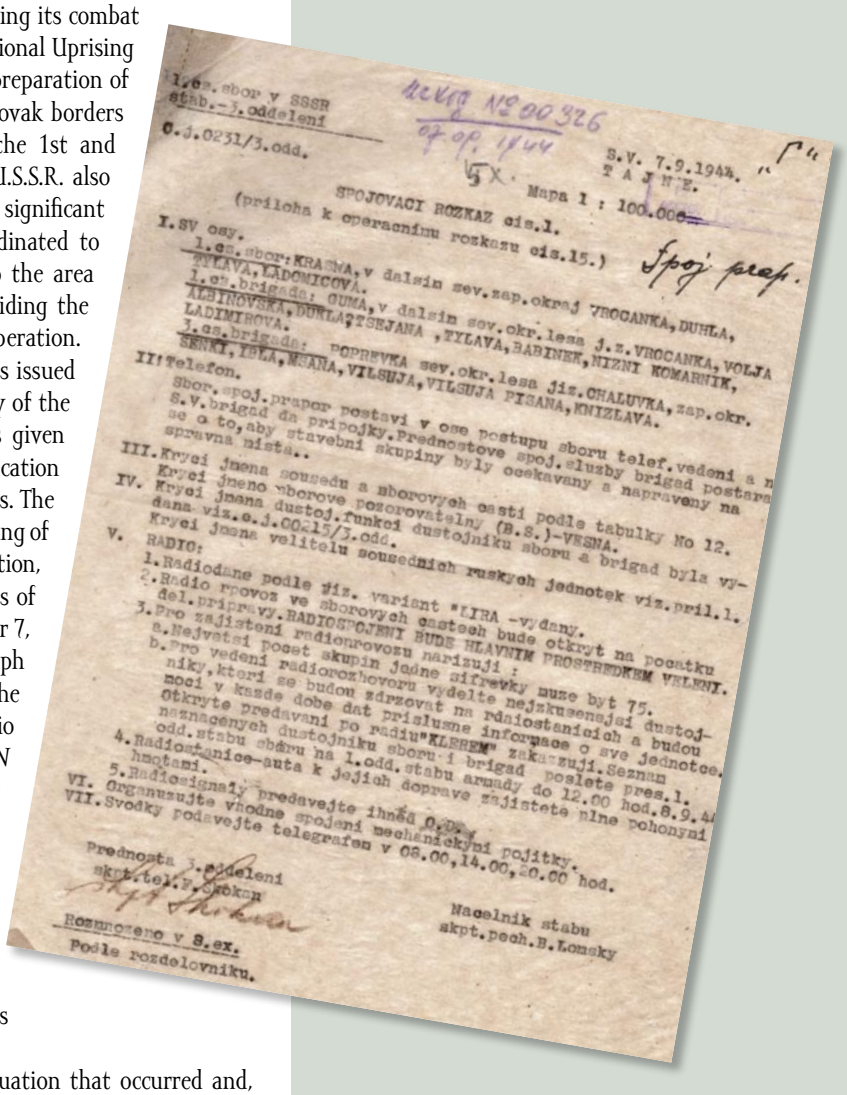


Army Corps in the U.S.S.R. Telegraph Corps Captain Skokan who was also the Chief of the 3rd (Signal) Division of the Corps Headquarter, was appointed Commander of the Battalion.

The Battalion consisted of Construction Platoon, Telephone Company, Radio Company and the Telephone Platoon attached to the 1st Czechoslovak Brigade. On July 11, 1944, the name of the Battalion was changed to the 1st Czechoslovak Signal Battalion in the U.S.S.R. Organisation of the battalion was changing together with its gradual augmentation. On August 1, 1944, they established Headquarters Company and 2nd Telephone Company. On August 15, 1944, Infantry Captain Oldřich Filka was appointed Commander of the Battalion. In the second half of August, the Chief of the 3rd Division of the Corps Headquarters elaborated overall plan of communication of the Army Corps, which was given the name – "Variant GLOBUS". The newly formed Tank Brigade also disposed of signal units. Its headquarters included a Signal Division and each of the three tank battalions had a Signal Officer. As a matter of fact, communication training was a part of training of each tank crew.

Captain Lomský with UNA-F-42 telephone apparatus

Thanks to the intensive training, formation of the 1st Czechoslovak Army Corps was practically accomplished and the Corps could start performing its combat tasks. On August 29, 1944, there was an outbreak of Slovak National Uprising and Soviet command was forced to respond by an accelerated preparation of an offensive operation with an objective to penetrate up to Slovak borders and to join the uprising Army. The task was allocated to the 1st and 4th Ukraine Fronts. The 1st Czechoslovak Army Corps in the U.S.S.R. also intervened in the upcoming Carpathians-Dukla operation in a significant extent. On September 4, 1944, the Army Corps, being subordinated to the 38th Army of the 1st Ukraine Front, started its move to the area of Krosno. Signal units of the Corps fully participated in providing the communication within preparation of the Carpathians-Dukla operation. Depending on concrete combat situation, the corps and brigades issued data for organisation of the communication and for the activity of the communication means. The completed and specified plan was given the name – "Variant KARPATY" (Carpathians variant). Communication in the staging area was fully prepared within less than two days. The accelerated preparation of the operation, accompanied by re-forming of the troops, together with breaching of concealment of radio operation, resulted in a premature disclosure which was one of the reasons of the unprecedented bloodshed during the operation. On September 7, 1944, Chief of the 3rd Division of the Corps Headquarters, Telegraph Corps Staff Captain Skokan issued Signals Order No. 1 in which he specified the axes of advance and stressed the importance of radio communication: *"... RADIO COMMUNICATION WILL BE THE MAIN TOOL OF THE COMMAND ... Select the most experienced Officers for (radio) voice communication who will stay at the radio stations and will be able to deliver necessary information concerning their units any time ..."*



SPOJOVACI ROZKAZ cis.1.

(priloha k operacnimu rozkazu cis.15.) Mapa 1 : 100.000

Spoj. prap.

The Carpathians-Dukla operation started on September 8, 1944. First-echelon units failed to capture Krosno within planned time and it resulted in total chaos on the access routes, which made a continuous advance of the units of the 1st Czechoslovak Army Corps impossible.

The Czechoslovak units were not even informed about the situation that occurred and, moreover, they were exposed to an immediate threat of the enemy side attack. Insufficient

intelligence information resulted in underestimation of the strength of the enemy who was bringing up the reinforcement forces and caused immense losses to the advancing units by artillery and mortar assaults. The enemy made full use of the terrain characteristics of Dukla Pass. In the moment when the advancing units ran against the organised resistance of enemy forces, the enemy units, hidden in the surrounding forests, opened destructive fire from all kinds of weapons. Considerable part of radio stations was put out of operation and the line communication was interrupted in many places by the enemy fire. The Corps Commander Brig. General Jan Kratochvil had practically no information concerning position of the enemy and he did not succeed to establish communication with the command of the neighbouring 67th Corps. It took a long time till he managed to achieve a firm control over the troops and to open retaliation artillery fire. Commander of the 1st Ukraine Front Marshal I.S. Konev imputed Brig. General Kratochvil for the failures and, in contradiction with the Czechoslovak-Soviet agreement, recalled him from command and replaced by Brig. General Ludvik Svoboda.

The enemy kept strengthening its defence and the soldiers of the Army Corps were forced to wage the heaviest battle they ever experienced during the whole war. On September 17, the Chief of the 3rd Division of the Brigade Headquarters, Telegraph Corps First Lieutenant Skokan was injured at Zbojsko. Forming of signal units of individual Army Corps components continued even that time. As of September 19, 1944, they established an independent signal platoon, consisting of two telephone and two radio squads, for the Corps Artillery.

3 Br

3. čs. samostatná brigada v SSSR,
3.oddelení.

Věc: Hlášení o ztrátách.

SV, 17. září 1944. Č.j. 3/179

Vel. 1.čs. arm. sboru v SSSR,
3. oddelení.

Hlásím ztráty na lidech a spoj. materiálu spojovacích jednotek 3. čs. brig.:
Ztráty na lidech: 5 radistu, 16 telefonistu.
Ztráty na materiálu: 4 rdst.RBM, 1 RP-12, 3 A-7, 51 km kablu, 83 bubnu na tel. kabel, 2 KOF, 5 tel. aparatu UNAF, 3 UNA-I, 2 EE-8-A,
Ztráty na transportu: 1 auto Willys, 9 koní, 3 povozy, 2 nosná sedla, 2 jezdecká sedla.

Největší ztráty nese 5. p.p.p., který vlastně ztratil veškerý spojovací materiál, dopravní prostředky a má největší ztráty na lidech. Dále spoj. prapor ztratil z uvedeného počtu kablu 22 km tím způsobem, že do povozu na kterém byl kabel naložen udřela mina.

Přednosta 3. oddelení:
por. tel. Oldřich Stanislav:

Soviet RBM radio station damaged during the Battle of Dukla

3.odd.štábu I.čs.brigády. T a j n é ! SV,26.9.1944.

1. Brig 26.9 Ne 8.

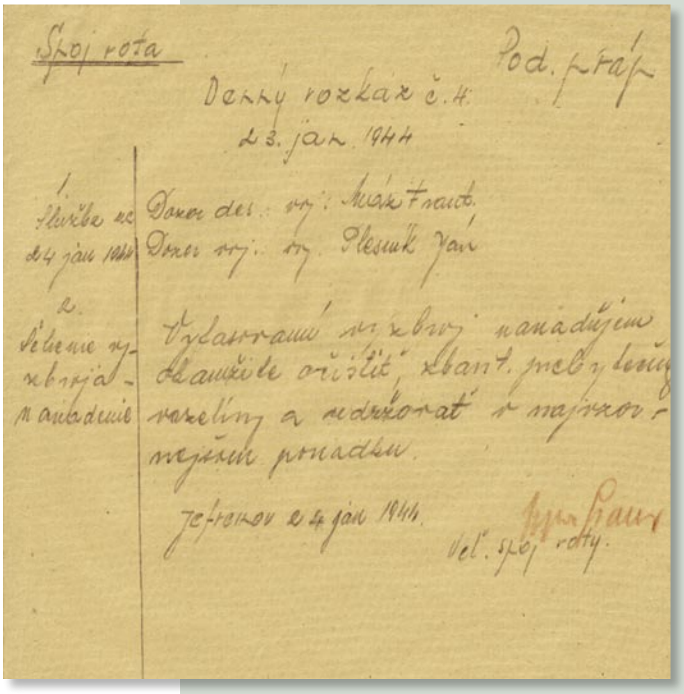
Protokol o ztrátách spoj.materiálu v bojích o Dukla od 8 - 26./9.1944.

Poř. čís.	Věc:	Počet:	Příčina ztráty:
1.	Telf.kábel	23,5km	Zůstalo v úseku znovu zajatém nepřítelem v boji o Bubrka 9./9.1944.
2.	Telef.kábel	12 km	Bylo částí zničeno trény a tanky, z částí smotáno cizími jednotkami v boji o Kobyljany.
3.	Telef. kábel	40 km	Ztraceno v bojích o kotu534 a 694.
4.	UNA-F	21	Zanecháno 2.praporem s celou sítí při ústupu z Bubrka.
5.	UNA-F	34	Z části rozbito minami, z části zanecháno na území dočastně obsazené nepřítelem v boji o kotu 534 a 694.
6.	KOF-33	1	Rozbit minou na kotě 534.
7.	EE-8-A	5	Ukradeno cizími jednotkami kterým jsme dali spojení.
8.	RBM	4	Rozbity minami v bojích o kotu 534.Zbytky stanic použity na součástky.
9.	R - 13	1	Rozbita minou v boji o kotu 534

Předn osta 3.odd.:
škpt.tel.ŠMOLDAS MIROSLAV:

Náčelník štábu:
škpt.pěch.DOČKAL JAROSLAV:

Working in difficult terrain and under extremely unfavourable conditions, the signal men transmitted needful information directly from the front line during the Carpathians-Dukla operation. Namely the members of break-down (maintenance) squads who restored the communication under fire and in the terrain full of mines and booby-traps proved immense bravery. With regard to the German heavy artillery and mortar fire, the line communication proved to be very unsuitable. Continuous interruption of the telephone communication resulted in considerable losses on the side of signalmen trying to restore the communication as well as on the side of the soldiers on the front line vainly asking for artillery support or reinforcement. Moreover, the enemy made masterful use of the advantage of radio communication and when retreating, he left observers, wearing civilian cloth and equipped with radio stations, among the civilian population and they were able to direct the fire exactly to the areas of concentration of our units. Unfavourable conditions for the propagation of radio waves, given by the mountainous terrain, forced the radio operators to unbelievable improvisations in the construction of antennas and remote control of radio stations, sometime located at quite considerable distance from the commander's shelters. On October 1944, reconnaissance patrol of the 1st Czechoslovak Independent Brigade crossed the former Czechoslovak state border. The same day, a part of the members of Telegraph Company and 1st Telephone Company of the Czechoslovak Signal Battalion fought their way to the territory of motherland as well. Commander of the 2nd Battalion, Infantry Staff Captain Josef Knop, using the radio station of the member of the 1st Czechoslovak Signal Battalion Sergeant Bembila, reported the message concerning the crossing of the state border to the Commander of the 1st Brigade, Brig, General Jaroslav Vedral-Sázavský. Having received the information, the Brigade Commander set forward to the territory of motherland. However, few meters behind the border, his vehicle ran on a mine. Brig. General Vedral-Sázavský became the only Czechoslovak General who was killed in action directly on the front. On October 6, 1944, Czechoslovak units started quite new period and began to liberate the territory of the republic. On October 21, the existing Commander of Signal Battalion Staff Captain Filka was appointed the chief of the 3rd Division of the 1st Czechoslovak Independent Brigade in the U.S.S.R. Artillery Captain Jirí Halaši was in charge of his deputy.


Spoj. rota

Pod. práp.

Denný rozkaz č. 4.
23. jan. 1944

1.
Služba na 24 jan 1944
Dozor des.: voj. Mák Franť.
Dozor voj.: voj. Plesník Ján

2.
Čistenie vyzbroja - nariadenie
[illegible] výzbroj nariaďujem okamžite očistiť, zbraň. [illegible] vazelíny a udržovať v najprísnejšom poriadku.

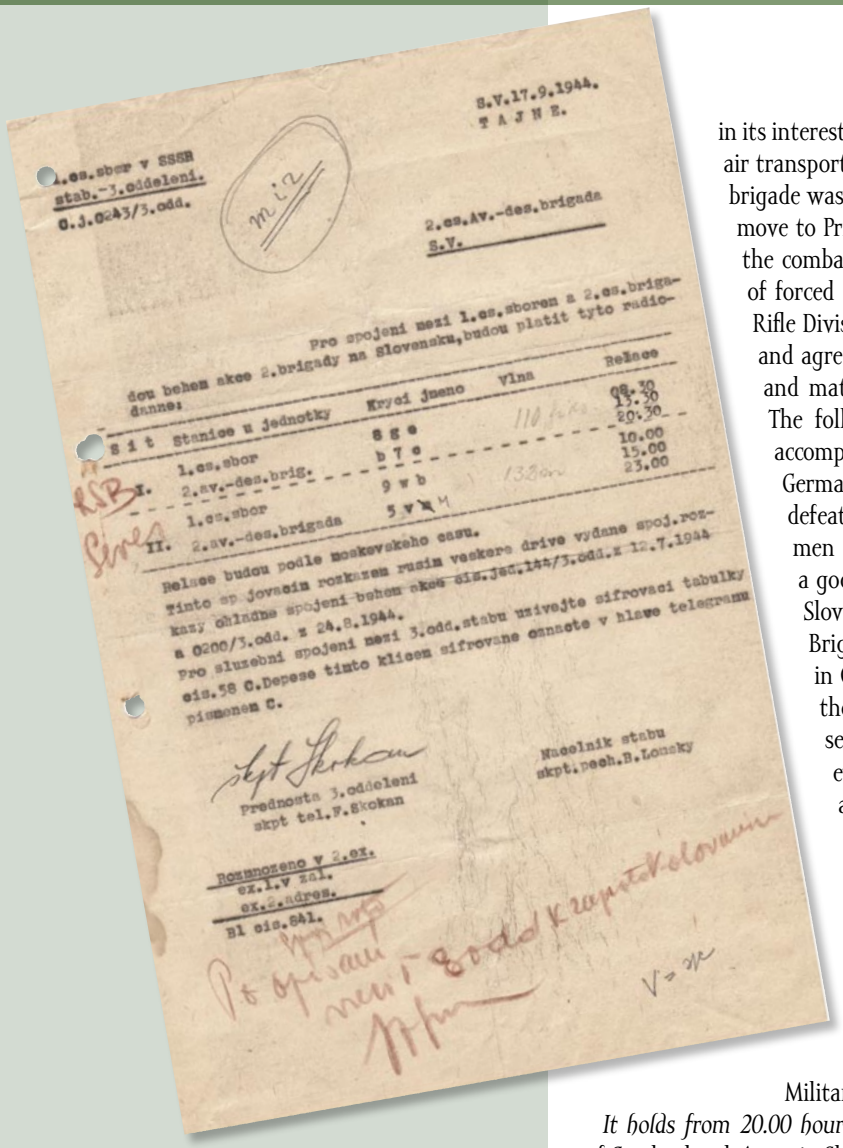
Jefremov 24 jan 1944.

[illegible]
Vel. spoj. roty.

Commander of the 2nd Independent Airborne Brigade Colonel Přikryl with RBM radio station during the battles in Besko area

The 2nd Czechoslovak Airborne Brigade in the U.S.S.R., the unit developed namely for the purpose of being used on the territory of former Czechoslovak Republic in case of anti-German uprising, experienced its debut in the course of the Carpathian-Dukla operation. The Signal Service of the Airborne Brigade, formed in Yefremovo from January 1944, was organised in the same way as in case of the 1st Czechoslovak Independent Brigade. Telegraph Corps Second Lieutenant Štefan Vrkoc became Commander of Signal Company and, later on, he was replaced by Infantry Second Lieutenant Pavol Grads performing also the function of the Chief of the 3rd Division of Brigade Headquarters. In the middle of May 1944, the Airborne Brigade moved to Proskurov where, in summer, its training culminated. At the end of the training, all the units of the brigade received Czechoslovak national flags to be hoisted on the liberated territory. Information about the uprising in Slovakia drummed up general enthusiasm connected with an expectation of a speedy transfer to the area of uprising. However, the fate of the brigade was dramatically hit by political decision. Soviet side evaluated the immediate transfer of the Airborne Brigade as strengthening of London Czechoslovak Exile Government in Slovakia which was not

TAI-43 Soviet telephone apparatus



S.V.17.9.1944.
T A J N E.

1.es.sbor v SSSR
stab.-3.oddeleni.
G.j.0243/3.odd.

2.es.AV.-des.brigada
S.V.

Pro spojeni mezi 1.es.sborem a 2.es.briga-
dou behem akce 2.brigady na Slovensku,budou platit tyto radio-
stanice:

	Stanice u jednotky	Krycí jméno	Vlna	Relace
I.	1.es.sbor	s g e		08.30
	2.sv.-des.brig.	b T e		15.30
				20.30
II.	1.es.sbor	9 w b		10.00
	2.sv.-des.brigada	5 v M		15.00
				23.00

Relace budou podle moskevskeho casu.
Tinto spojovacim rozkazem rusim veskere drive vydane spoj.roz-
kazy ohledne spojeni behem akce dis.jed.144/3.odd.z 12.7.1944
a 0200/3.odd. z 24.8.1944.
Pro sluzebni spojeni mezi 3.odd.stabu uzivejte sifrovaci tabulky
cis.58 C.Depese timto klicem sifrovane oznacte v hlave telegramu
pismenem C.

Predneota 3.oddeleni
skpt tel.F.Skokan

Nacelnik stabu
skpt.pech.S.Lonsky

Rozmnozeno v 2.ex.
ex.1.v zal.
ex.2.nadres.
81 cis.sal.

in its interest. In spite of the repeated urge of Czechoslovak side, instead of an air transport to the area of uprising, they received an order saying that the brigade was subordinated to the Command of the 38th Army and it should move to Przemysl. On September 9, 1944, the Brigade started its move to the combat position in the area of Besko. Within 48 hours, after 120 km of forced march, it reached the destination where it replaced the 121st Rifle Division of Red Army. In order to speed up the transfer, they made and agreement concerning leaving the link communication on the spot and material compensation from the stocks of the Airborne Brigade. The following days, the Brigade waged a number of heavy battles accompanied by the shortage of ammunition and artillery support. German side, making use of terrain and fire support dominance was defeated only for the price of heavy losses. The experience the signal men of the Airborne Brigade achieved in the heavy battles were a good school for dropping the Brigade to the rear of the enemy in Slovakia. On September 18, 1944, the 2nd Czechoslovak Airborne Brigade occupied Pulawa village and thus, it finished its operation in Carpathians-Dukla operation. The Brigade was withdrawn from the front and sent to Krosno from where it was expected to be sent to help the Slovak National Rising. That time, it was already evident that the Carpathians-Dukla operation will not result in a rapid break-through of Red Army to Slovakia. Moreover, the situation concerning the uprising was not favourably developing and the postponing of the Brigade transfer to Slovakia seemed to be unbearable even for the Soviet side.

The 1st Czechoslovak Army in Slovakia became the major armed force of Slovak National Rising which burst out on August 29, 1944. Its formation started on the basis of the Order of the Chief of Staff of Slovak Army Land Forces Headquarters and, at the same time, Commander of illegal Military Centre, Lt. Colonel GS Ján Golian: *"Order. Start the evacuation. It holds from 20.00 hours today."* The illegal Military Centre changed to the Command of Czechoslovak Army in Slovakia and became a central military control body of all uprising troops. The Government in London declared the First Czechoslovak Army a part of the Czechoslovak Defence Force. Provision of communication for uprising units was a part of preparation of the uprising. Telegraph Corps Major Jozef Marko who became Commander of Signal Troops of Slovak Army in 1939 and cooperated with the resistance movement since 1940 succeeded to transfer the Signal Battalion from Prešov and Signal School from Nové Mesto nad Váhom to Turčianský Sv. Martin. Here, they established a centre of signal units for the command of the uprising in Banská Bystrica. In July 1944, they established

German SE 469A radio station of the first generation used by Slovak Army

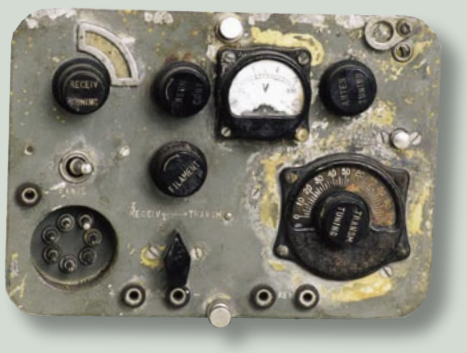
Signalmen of Martin Garrison

a Combined Signal Unit for the troops indented to defend the triangle of Zvolen – Banská Bystrica – Brezno nad Váhom in Nové Mesto nad Váhom. Telegraph Corps First Lieutenant Ivan Institoris was appointed its commander. Having accomplished its training, the unit moved to Banská Bystrica. The approaching front and sharp development of resistance movement in Slovakia made the Slovak state representatives to agree with the entry of German Army to Slovakia. On August 29, 1944, as a reaction to the declared entry of German troops, Lt. Colonel GS Golian issued the above mentioned code word to start the uprising. In the first days of Slovak National Rising, they succeeded to concentrate an Army possessing the strength of 19,000 men which grew up to 47,000 men after the first mobilisation. Numerically small signal unit, located in Banská Bystrica and equipped with Czechoslovak and German equipment, became a core Telegraph Battalion of the 1st Czechoslovak Army. Telegraph Corps Major Marko, additionally promoted to the rank of Colonel, became Commander of Signal Troops of the 1st Czechoslovak Army. At the end of August 1944, the signal units concentrated in Turčianský Sv. Martin were placed in the position when they were not able to perform their own mission and they took part in the defensive battles for Strečno and Vrútky as infantry units. On September 10, 1944, the 1st Czechoslovak Army started its reorganisation. It formed six Tactical Groups and one Aviation Group. At the same time, development of communication system of the Army was accomplished. Being replaced by reserves all the uprising units were relocated to Banská Bystrica and concentrated in the buildings of a secondary school and boarding-house. Newly established Telegraph Battalion headed by Telegraph Corps First Lieutenant Institoris was in command of six Combined Signal Companies providing communication for individual tactical groups. In addition to the mentioned units, they established Army Telegraph Park concentrating the communication equipment, making small repairs and supplying the units. The Warning and Early Warning Company was an additional independent component of Signal Troop.

First Lieutenant Ivan Institoris

Radiotelegraphers of Tactical Group IV with German 15 W.S.E.b radio station

The growing brunt of the battle of the German units could be stopped only by the help of the 2nd Airborne Brigade which was still waiting for its air transfer to Slovakia. At the end of September, only Commander of the Brigade Vladimír Přikryl with his Staff and less than a hundred of men left for Slovakia. Soviet Command, having in disposal only a limited number of transport aircraft, preferred to the supply the ideologically related partisan units. On October 6, 1944, the air transfer of the brigade finally started. Till the middle of October, they succeeded to transfer nearly the whole brigade to the area of uprising. On October 7, 1944, Division General Rudolf Viest took over the command of the 1st Czechoslovak Army in Slovakia. After second mobilisation and arrival of the newcomers, the strength of the Army increased up to 65,000 men. Immediately after its arrival, the 2nd Airborne Brigade engaged in the defensive battles and thanks to its massive attack, it forced the German units to retreat. However, the dominion, namely in heavy weapons, was evidently on the side of the enemy. First Lieutenant Králíček from the Headquarters of Signal Troops of the 1st Czechoslovak Army was detached as Signal Officer of the 2nd Czechoslovak Airborne Brigade. After the transfer of the 2nd Airborne Brigade to the territory of Slovakia, the communication was provided mostly by radio. The Signal Troops provided communication also with Zolna and Tri Duby airfields where the 1st Czechoslovak Fighter Regiment, relocated from the Soviet Union, was also operating. Lieutenant Sekerka was appointed Liaison Officer between the Signal Troops of the 1st Czechoslovak Army and Partisan Staff.



Soviet radio station SEVER found in the grave of a member of the 2nd Czechoslovak Airborne Brigade

Soviet RB radio station

Main German attack started on October 19, 1944. The 1st Czechoslovak Army and Partisan units were forced to retreat in spite of their strong-willed resistance. The worsening situation of the uprising troops made the Army Telegraph Battalion to change its position. At first, it was moved from Banská Bystrica to Michalova by Brezno nad Hronom and then, to the area of Donovaly. Signal units played essential role in the Slovak National Rising. Thanks to them, the Headquarters of the 1st Czechoslovak Army in Slovakia succeeded to keep in touch with the tactical groups as well as with Partisan brigades. On October 27, 1944, German units entered Banská Bystrica. Headquarters of the 1st Czechoslovak Army ceased to exist one day later during the retreat from Donovaly to the Low Tatra massif. Remaining units, including the rests of the Airborne Brigade, retreated to the mountains and changed to partisan way of waging the war. Absence of radio communication with Czechoslovak Military Mission in Moscow and with MOND in London was the most essential problem which caused the planning of supply of the units by air impossible. The Airborne Brigade lost all its communication material during the retreat to Donovaly where even the vehicle of Signal Company was destroyed during German bombing. Only the radio of Partisan Staff of Colonel Asmolov keep in touch with the superiors for a short time but it was also interrupted due to the shortage of accumulator batteries. The MOND in London tried to establish communication with the Airborne Brigade via British SOE radio station of the WINDRROOF military mission in Slovakia. However, it received only two messages this way. On February 19, 1944, after the hard winter spent in mountains only 579 males and females of the 2nd Czechoslovak Airborne Brigade came out of the German rear area and joined the Soviet units again. The brigade was restored as an infantry unit but it didn't engage any combat operation.

American EE-8-A telephone apparatus delivered i.a. to the Soviet Union

In the period when the uprising troops, being in nearly deadly embrace, retreated to the mountains, the German defence in the Carpathians was definitely broken through on October 31, 1944. After subsequent exhausting battles, the Army Corps took the defensive position in the area of Ondava River at the end of November. Artillery of the Corps was secretly moved to the area of Jaslo where it was to support the beginning of attack of the 38th Army towards Krakow and Ostrava. Signal men of the Artillery and Corps participated in all the measures taken in order to keep this operation secret. They took a number of steps to prevent the enemy to discover the departure of artillery units. They built dummy artillery radio networks in the defensive zone and simulated a full operation of the signal means at observation posts and command posts. The break-down and maintenance squads were regularly checking the non-existing artillery lines. There was a strict ban on the use of radio stations for any reason during the artillery transfer. Within the preparation of the Jaslo-Gorlik operation, all the works connected with the installation of lines were carried out solely at night. During the day, only a limited number of persons necessary for observation and operation of communication equipment remained in the areas of observation posts and command posts. Other signal men moved 15 to 20 km behind the front before daybreak. In the preparation period, the radio operators were located in the villages behind the front and tuned individual radio networks to short range, without using antennas only. Thanks to these measures, they succeeded to

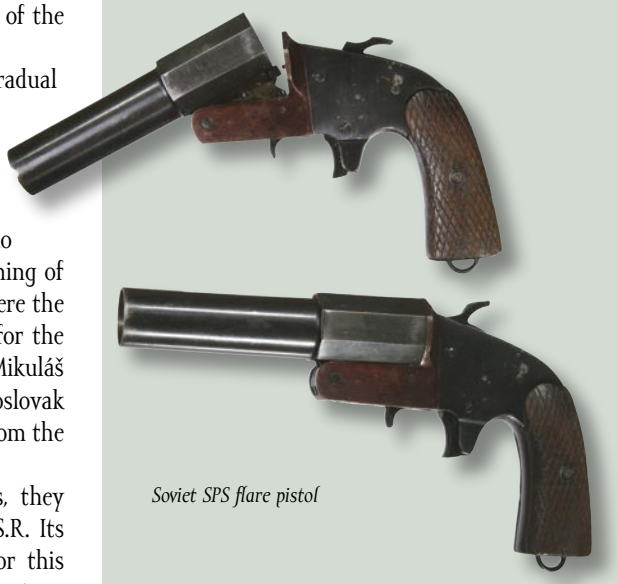
create a delusion of quite passive sector. It substantially contributed to the success of the operation which started on January 15, 1945.

After the success of the Jaslo-Gorlik operation, German units started their gradual retreat from the Eastern Slovakia. Army Corps units pursued the retreating enemy. In the course of the attack, they maintained communication with the corps and brigades using radio stations in nearly all cases. For example, the 2nd Czechoslovak Independent Signal Battalion, consisting of 165 males and females in January 1945, disposed, beside the line communication means, of twelve radio stations of RBM type, one RBS and one radio station of SEVER type. At the beginning of February 1945, the Army Corps units reached the area of Liptovský Sv. Mikuláš where the enemy had an advance-developed deep defence area located in a terrain suitable for the defence. After long battles and many attempts to break the defence, Liptovský Sv. Mikuláš was definitely liberated on April 4, 1945. Members of the newly formed 4th Czechoslovak Brigade in the U.S.S.R, the large part of which consisted of the mobilized citizens from the liberated parts of Slovakia, also participated in the battles.

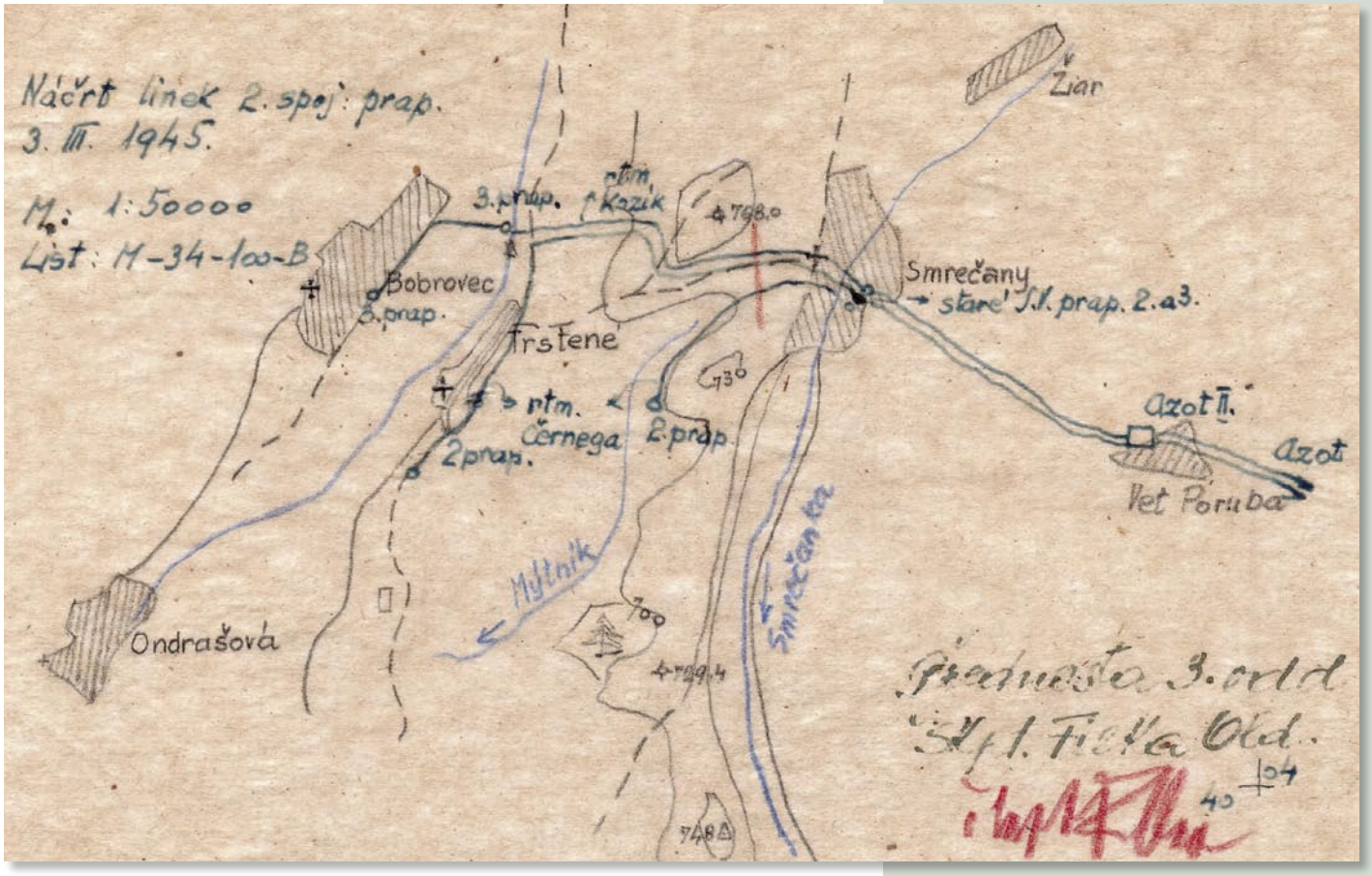
On February 20, 1945, based on the Order of Commander of the Army Corps, they established Corps Signal School of the 1st Czechoslovak Army Corps in the U.S.S.R. Its mission was to train the members of the army corps in signal service and, for this reason, it established a School of Reserve Officers, School of Specialists (wireless operators, mechanics and machine operators) and NCO School. Telegraph Corps Staff Captain Šmoldas was appointed commander of the school.

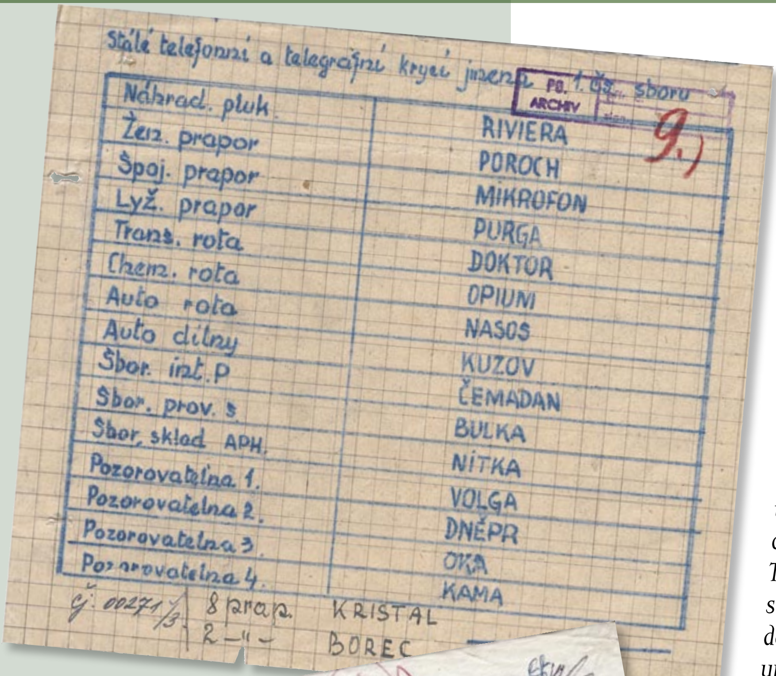
In the course of Carpathians-Dukla operation and subsequent battles in the mountainous terrain of Slovakia, the signal units suffered considerable losses. Only in the period from September 8 to 13, 1944, the 2nd Czechoslovak Signal Battalion had two men killed in action, eleven injured and three men missing in action. The Chief of Signal Division of the 1st Brigade, Telegraph Corps Staff Captain Šmoldas was also seriously injured in the battles.

Average damage of communication material in individual operations reached 15 to 18% of the total amount. In the mentioned case of the 2nd Signal Battalion, it represented 20 km telephone cable and 10 pieces of telephone apparatus within six days. In his assessment



Soviet SPS flare pistol





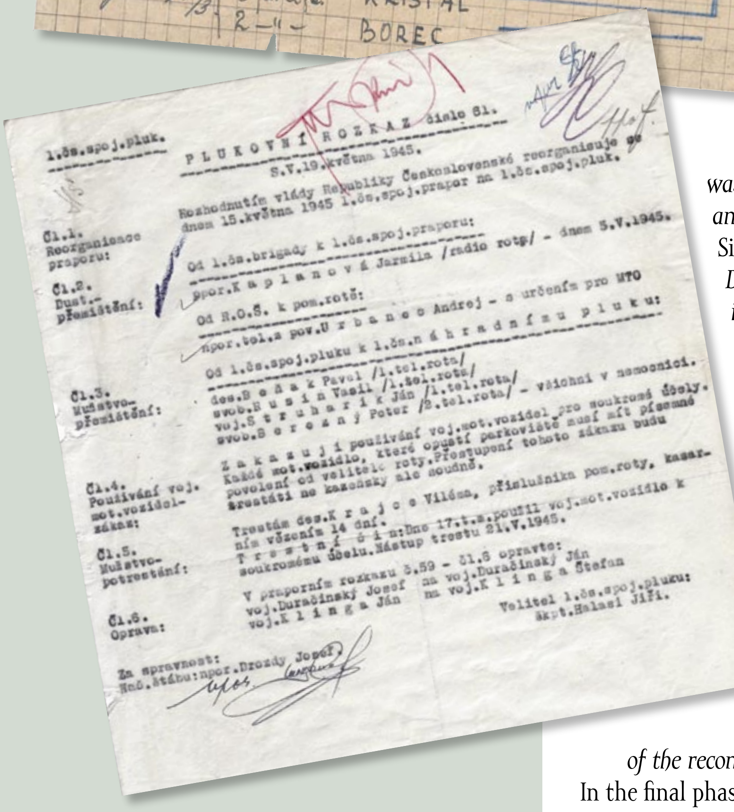
Stálé telefonní a telegrafní krycí jména 1. čs. sboru

PO. 1. ČS. ... ARCHIV

9.)

Náhrad. pluk	RIVIERA
Žel. prapor	POROCH
Spoj. prapor	MIKROFON
Lyž. prapor	PURGA
Trans. rota	DOKTOR
Chem. rota	OPIUM
Auto rota	NASOS
Auto dílny	KUZOV
Sbor. int. P	ČEMADAN
Sbor. prov. s	BULKA
Sbor. sklad APH.	NITKA
Pozorovatelna 1.	VOLGA
Pozorovatelna 2.	DNĚPR
Pozorovatelna 3.	OKA
Pozorovatelna 4.	KAMA

č.j. 00271/3 8 prap. KRISTAL
2 -"- BOREC



1.čs.spoj.pluk.

P L U K O V N Í R O Z K A Z číslo 61.

S.V.19.května 1945.

Rozhodnutím vlády Republiky Československé reorganisuje se dnem 15.května 1945 1.čs.spoj.prapor na 1.čs.spoj.pluk.

Čl.1. Reorganisace praporu:

Od 1.čs.brigády k 1.čs.spoj.praporu:

Čl.2. Důst.-přemístění:

ppor.K a p l a n o v á Jarmila /radio rota/ - dnem 5.V.1945.

Od R.O.Š. k pom.rotě:

npor.tel.a pov.U r b a n e c Andrej - s určením pro MTO

Od 1.čs.spoj.pluku k 1.čs.n á h r a d n í m u p l u k u:

Čl.3. Mužstvo-přemístění:

des.B e ň a k Pavel /1.tel.rota/
svob.R u s i n Vasil /1.tel.rota/
voj.S t r u h a r i k Ján /1.tel.rota/
svob.B e r e z n ý Peter /2.tel.rota/ - všichni v nemocnici.

Čl.4. Používání voj. mot.vozidel-zákaz:

Z a k a z u j i používání voj.mot.vozidel pro soukromé účely. Každé mot.vozidlo, které opustí parkoviště musí mít písemné povolení od velitele roty. Přestupení tohoto zákazu budu trestati ne kázeňsky ale soudně.

Čl.5. Mužstvo-potrestání:

Trestám des.K r a j c e Viléma, příslušníka pom.roty, kasárním vězením 14 dní.
T r e s t n ý č i n: Dne 17.t.m.použil voj.mot.vozidlo k soukromému účelu. Nástup trestu 21.V.1945.

Čl.6. Oprava:

V praporním rozkazu č.59 - čl.6 opravte:
voj.Duračinský Josef na voj.Duračinský Ján
voj.K l i n g a Ján na voj.K l i n g a Štefan

Velitel 1.čs.spoj.pluku:
škpt.Halasi Jiří.

Za správnost:
Nač.štábu:npor.Drozdy Josef.

of the combat operations, the Chief of Signal Division mentioned the following deficiencies: *"The corps trunk line was connected to the brigade telephone exchange. The line was further extended to the corps observation post; it was overloaded by the brigade, using this line to solve its internal matters and, in the meantime, the corps commander's calls and operational calls could not be realised and they were not let to pass by the brigade communication exchange. In one case, the connection of the Corps Command with the Corps Observation Post was achieved only after 2.15 hours just because the brigade occupied the line for itself. Even at a short daily advance, the telephone communication behind the advancing battalions was not always developed in time. As some commanders are not able to use the radio and in some cases, they are afraid to use it in combat, the units were without communication in many cases ... The telephone and radio calls did not observe the rules concerning security. Information concerning the situation in friendly unit were delivered in plain language specifying the position and the name of units, which was often used by the enemy for artillery fire by surprise ... In case of overloaded telephone network, the order of calls according to the importance of the functionaries (commander, chief of staff, chief of operation division, artillery commander and artillery chief of staff) was not observed and the network was held by conventional calls of auxiliary and logistic components namely ..."*

Simultaneously, the overall activity of signal men was assessed very high: *"... During the battles in the area of Benjadikovo, Smrečany, Bobrovce, Jalovec and in the battles for Liptovský Sv. Mikuláš ... Telephone and radio communication worked reliably during the whole time of the battles. Namely the telephone operators who managed to save all the communication equipment distinguished themselves during the enemy counterattack and retreat of friendly infantry. In the meantime, the radio operators were fighting with the enemy and maintained permanent communication ... During the enemy counterattack against Jalovec and retreat of a part of the infantry, the telephone operators stayed in their positions and maintained telephone communication with the Battalion Commander during the heavy artillery fire ... The signalmen worked bravely the whole time; they promptly repaired the failures, maintained permanent radio communication and thus, they considerably contributed to overall success of individual combat activities ... Radio operators often participated in distant reconnaissance where they provided radio communication but they were useful members of the reconnaissance patrols also in other ways.*

In the final phase of World War II, the members of the 1st Czechoslovak Army Corps in the U.S.S.R., the strength of which achieved 32,000 males and females in 1945, participated in the liberation of Czechoslovak Republic. The 1st, 3rd and 4th Czechoslovak Brigades were fighting on the territory of Slovakia and Moravia; Tank Brigade and Combined Air Force Division – on Polish territory and at liberation of Ostrava. In this phase, the communication was organized on the basis of Communication Plan called Variant TRIUMPH and on the basis of additional Communication Orders. In May 1945, the Army Corps Signal units had the following commanders:

Artillery Staff Captain J. Halaši – 1st Signal Battalion of Army Corps;

Lieutenant M, Pohoriljak – 2nd Signal Battalion of the 1st Czechoslovak Independent Brigade;

First Lieutenant L. Vrkoč – 3rd Signal Battalion of the 2nd Czechoslovak Independent Airborne Brigade;

First Lieutenant K. Fanta-Furcht – 4th Signal Battalion of the 3rd Czechoslovak Independent Brigade;

First Lieutenant B. Šramo – 5th Signal Battalion of the 4th Czechoslovak Independent Brigade;

Telegraph Corps Major M. Šmoldas – Signals School.

On May17, 1945, a number of signal men took part in the military parade in Prague.

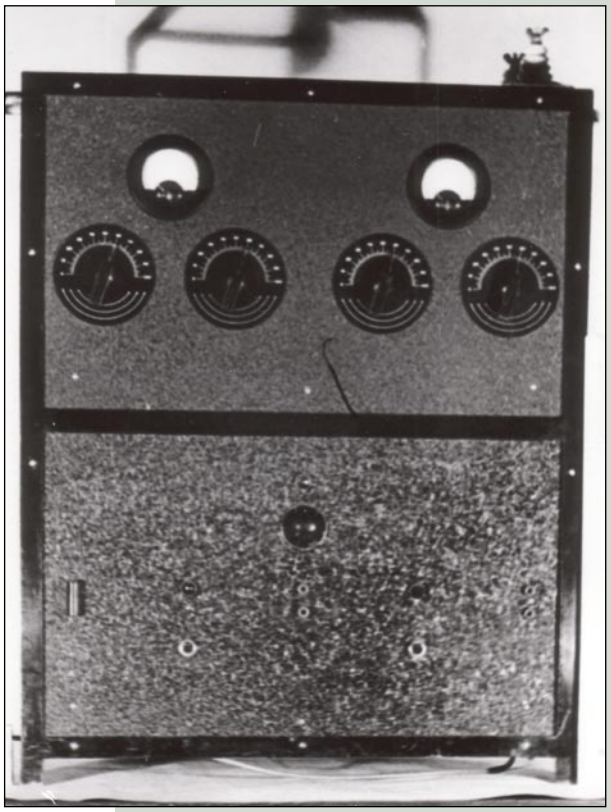
9RM Soviet radio station

HOME RESISTANCE MOVEMENT

Soon after the occupation of the Czech countries and constitution of Protectorate of Bohemia and Moravia a wave of resistance arose and resulted in the departure of many former Czechoslovak citizens abroad and in the formation of home resistance movement. Several illegal groups as well as resistant movement organisations having firmly set structure and the background that enabled waging of intelligence war against Germany were formed on the home front.

The later mentioned organisations included namely the military resistant movement organisation Nation's Defence, Political Headquarters and The Petitionary Committee Faithful We Shall Remain. The Defence was formed shortly after occupation with the mission to prepare armed uprising. The Nation's Defence was founded by a part of the corps of generals and senior officers of the Czechoslovak Defence Force. It was headed by Central Command and Staff and the subordinate Country's Commands. The underground Army, ready to oppose the Nazis was to consist of as much as 90,000 men. The Nation's Defence organised illegal departures of former officers and soldiers abroad as well as the intelligence. Nazis were fully aware of the danger coming from former soldiers. Their main attack was aimed at the Czechoslovak corps of generals, intelligence officers and the officers of the Main Staff. Smashing of the Nation's Defence was caused due to its traditional military organisational structure. In the first half of the year 1940, the Nation's Defence, in its original form, was practically smashed by the blows of Gestapo. On September 28, 1941,one day after the arrival of Reinhard Heydrich at the Protectorate, two leading functionaries of the Nation´s Defence, its Commander-in-Chief Army General Josef Bílý and Commander of Country's Command, Bohemia, Division General Hugo Vojta were executed by shooting in Ruzyně barracks. The last words of Army General Josef Bílý were: *"Long live the Czechoslovak Republic! Fire, you dogs."*

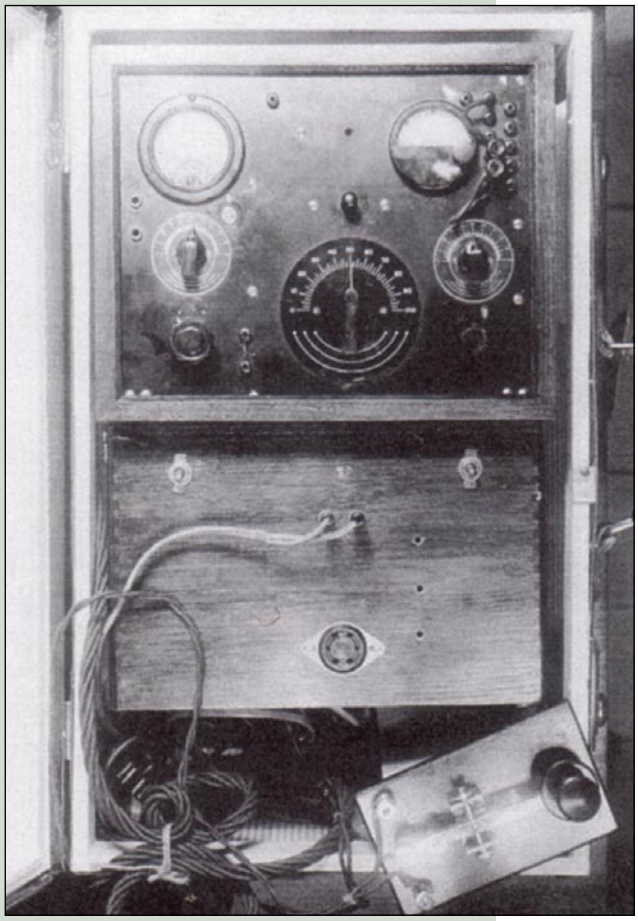
Second garniture was definitely liquidated in December 1941 when they captured the last commander of the Nation´s Defence, Division General Bedřich Homola. A group of three members of the Nation´s Defence, who were called "Three kings of the Czech resistance" even by Gestapo, were the most significant members of the home resistance movement. Artillery Lt. Colonel Josef Balabán, Artillery Lt. Colonel Josef Mašín and Artillery Staff Captain Václav Morávek organised extensive intelligence and executed a number of sabotage actions. Thanks to the radio communication with London, they conveyed a number of intelligence information, partly acquired from the most significant agent of Czechoslovak Intelligence Service Paul Thümmell (A54). The first two mentioned men were arrested by Gestapo and executed, the last one was killed in a gun-fight with the predominance of Gestapo in the first spring day 1942. Some parts of the Nation´s Defence remained active in spite of the waves of arresting till the end of the war and achieved much and significant success in the field of intelligence by means of the radio stations maintaining the contact with the command in Great Britain.



Radio transmitter of the Petitionary Committee Faithful We Shall Remain found in the church at Slatinany in October 1941

The Petitionary Committee Faithful We Shall Remain was established immediately after March 15, 1939. Important role in the Committee was played e.g. by railwaymen and postal service personnel. The Petitionary Committee organised namely illegal departures abroad by means of railway network and intelligence. Messages abroad were sent by couriers or by radio telegraph way. The organisation suffered heavy losses during arresting at the turn of the years 1939 and 1940 already. Next waves of the arresting arrived at the turn of the years 1941 and 1942 and namely in September 1942 when the Petitionary Committee, as an operational organisation, was practically smashed.

Further resistance movement organisation, Political Headquarters, was formed shortly after March 15, 1939. The organisation consisted of rather close circle of politicians and publicists and it was aimed namely at Prague, Brno and Plzeň. It was practically a kind of illegal continuation of the coalition of political parties. The organisation was interested namely in intelligence and in the first months, it organised anti-Nazi demonstrations. After extensive arresting it was practically liquidated at the end of the year 1939 already. However, some of its groups continued in the activity till the year 1944.



One of the radio transmitters of Nation´s Defence stored in a case

At the beginning of the year 1940, they formed Home Resistance Headquarters (ÚVOD), a coordination central body of major components of the resistance movement. It included all the above mentioned resistance movement organisations. In the course of the year 1941, activity of the organisation culminated. That time, it executed extensive intelligence in favour of the Czechoslovak Government in London and cooperated with the first airlanded troops from the Great Britain. In autumn 1941, nearly complete collective command was liquidated by a Gestapo action. Extensive arresting continued even in the year 1942. The last representative of the organisation, doc. Vladimír Krajina, was arrested in January 1943.

Common feature of all the resistance groups, beside the bravery and resolution, was the need to provide two-way communication with the leadership of the Czechoslovak resistance abroad, in London. In the first phase, it was a post office and courier communication which played important role. However, growing success of German Army put the Protectorate to entire isolation and the only possibility was the use of radio telegraph communication. Its essential importance consisted namely in conveying valuable intelligence information from the Protectorate. In London, they were handed over to British side and increased the credit of London leadership of the resistance. The Protectorate was not only a centre of armament production but also an important traffic intersection, the significance of which grew with the transfer of military operations to Southern and Eastern Europe. However, provision of the home resistance movement with communication means did not correspond with its importance at all. Before occupation of the Czech countries, the Army Command did not take any step to develop some agency radio network which would be functioning later. Therefore, in the first phase of the war, the communication means of the Nation´s Defence were provided namely by radio amateurs and former members of telegraph troops. Signal group of the Nation´s Defence headed by Colonel GS Štěpán Adler and Captain Karel Divina concentrated the wireless operators from former Central of Training Radio-electric Stations in Prague specialized to radio monitoring and direction finding (detection) before the war. The group succeeded to acquire about twenty radio stations from the radio amateurs and from the production of Microphona Company. Several radio stations were transported also from Great Britain via Poland. Maintaining of permanent communication with the home resistance movement required two-side, high-quality technical equipment. At the beginning, thanks to the immense effort of the soldiers from the Nation´s Defence, the communication was surprisingly better on the side of the home resistance movement. On March 14, 1939, they had no radio station for maintaining the communication with home on the board of the aircraft which transported the Chief of Reconnaissance Group of the 2nd Division of the Main Headquarters Colonel GS František Moravec. Moreover, the group did not include any specialist for organisation of radio communication and coding.

Radio receiver PENTO used i.a. by the Country's Command of Nation´s Defence in Prague

In the course of summer and autumn 1939, the Nation´s Defence tried to establish an internal radio communication network between Country's Commands of the Nation´s Defence in Prague and Brno and between the Regional Commands of the Nation´s Defence. They succeeded to establish only the communication between Prague and Brno. However, it was only a test transmission.

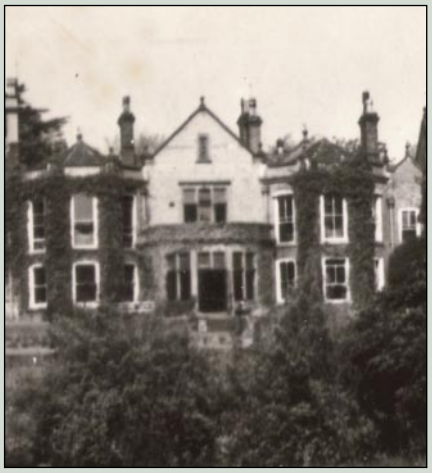
Since the very beginning of the resistance movement, the representatives of the home resistance movement strived namely for provision of a permanent radio communication with the centres abroad. As early as in June 1939, Major GS Jaroslav Hajíček elaborated Directives No. 1 for Radio Communication and sent it by courier to Warsaw and Paris. At the beginning of August 1939, the home resistance, using wireless operator WO František Franěk, succeeded to establish and maintain two-side communication with the branch Division in Warsaw (code name – MARIE). Conveying of the messages between Warsaw and London was executed by British side and its radio stations. In August 1939, they established the first Czechoslovak Communication Centre Abroad (code name – Karel) in Paris. During

September 1939, MARIE was transferred to Bucharest from where it established communication with Prague at night from September 30 to October 1. However, the non-existence of a permanent communication with London exile centre and namely with the Intelligence Group of Colonel GS Moravec represented the basic deficiency. In spite of all the effort of the home resistance movement the communication failed to be realised. Major GS Hájíček in his letter to London wrote: *"There is only one Communication in the twentieth century which may be called modern, it is radio! If it was grasped by the East, which is, in the opinion of the West, hundred years behind the apes, it is necessary for the West to grasp it as well. And when the mountain didn't approach Mohamed, Mohamed approached the mountain ..."*

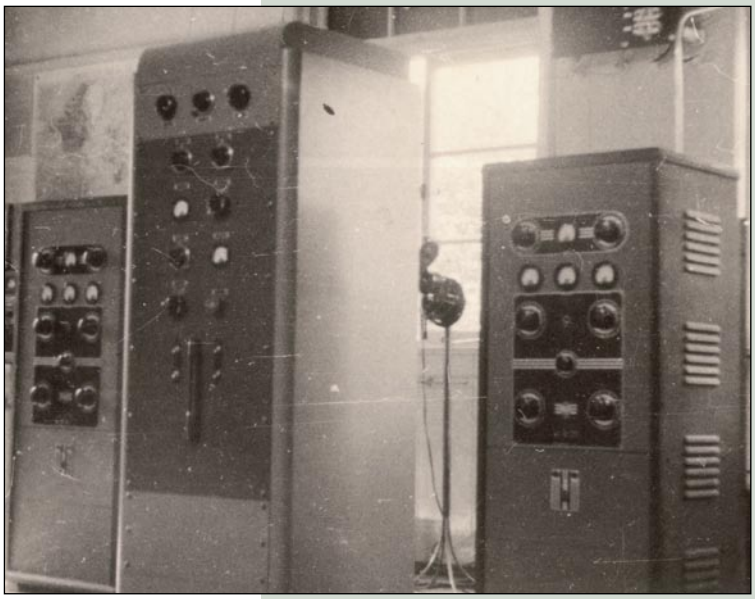
Military Radio Centre in Great Britain played an essential role in the communication. Its beginnings go back to September 1939 when wireless operator WO Karel Barva began experimental operation of a radio station located in a villa in a London suburb of West Dulwich. On September 1, 1939, when they established the Czechoslovak Radio Operation Centre located on Rosendalo Road, the Intelligence had only one borrowed transmitter – MARK III – intended for agency use. Its power of 40 KW could not, in any case, be enough to maintain high quality communication with Protectorate. Installation of new 150W transmitter was accomplished on November 20, 1939. Equipment of the transmitter was complemented by National NC 100 receiver and Hallicrafters SX 16 "Super Sky Rider". Antenna system consisted of a simple wire antenna of Windom type. The first two-way communication with Paris was made by WO Barva on September 15, 1939. In the course of the time, the radio stations of home resistance movement tried to make communication with London or Paris with no effect.

On November 7, 1939, after the complicated conveying of messages by couriers, they succeeded to establish communication between the home resistance movement and London. The home resistance station was operated by WO Franěk and the station located in West Dulwich – by WO Barva. One day later, Military Radio Centre of the Intelligence Department of MOND in London sent the first message to Prague which was confirmed by Prague. With regard to the growing radio operation, the Military Radio Centre headed by Infantry First Lieutenant Jaroslav Stuchlý moved to Funny Neuk villa at Duke Hill by Woldingham about 50 km south to London. On May 15, 1940, it started its operation. The existing equipment was augmented by other 150W and 350W transmitter and two receivers.

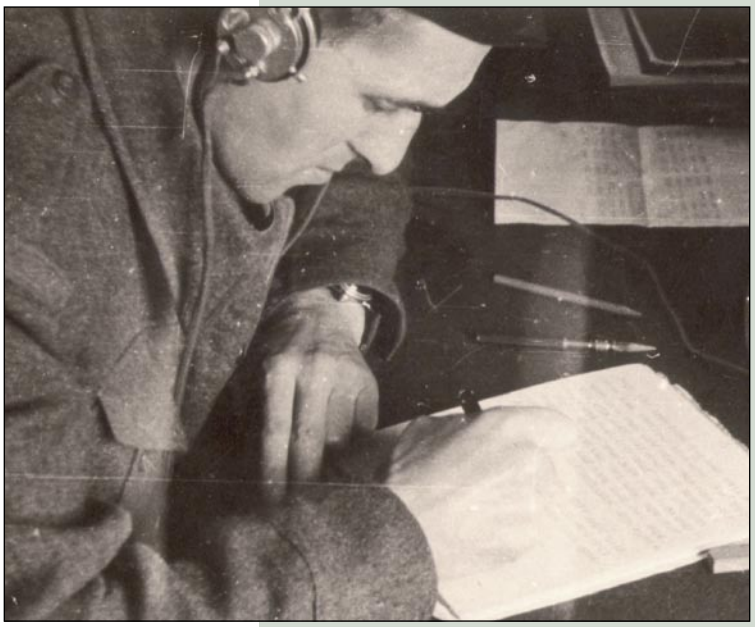
In November 1939, WO Franěk, who personally built up a number of radio stations, finally established the communication with London. However, shortly after that, the group of Colonel GS Adler was affected by a wave of arresting. In November 1939, under the threat of being arrested, Major GS Hájíček succeeded to escape abroad. WO Franěk, arrested on December 16, 1939, was among those who were not so lucky. Doc. Krajina gains recognition for the restoration of communication as well. The communication of home resistance with exile leadership in London was provided namely by the radio stations of an extended communication programme called SPARTA. The SPARTA established communication on April 6, 1940. It was operated namely by Lieutenant André Regenermel, Bedřich Škopek and Sergeant Jindřich Klečka who took turns at its operator's key. On May 7, 1941, Gestapo made a swoop on one of the reckoned addresses in Hodkovičky and arrested Lieutenant Regenermel. At subsequent arresting, Gestapo found several radio stations. Since March 1944, it was also radio station of the "Three kings", operated namely by Sergeant František Peltán, presenting itself



Radio station in the object of Military Radio Central in West Dulwich



Seat of Military Radio Central in Woldingham

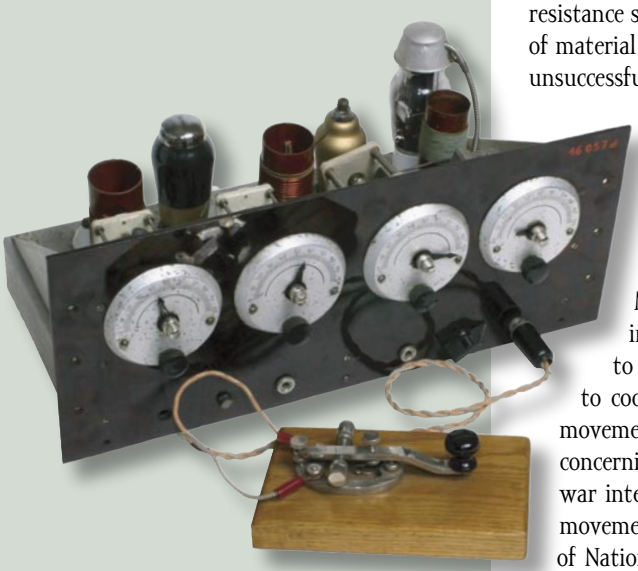


WO Karel Barva

František Peltán

as SPARTA II, which maintained the communication with London. On May 13, 1941, the SPARTA II was discovered in the Pod Terebkou Street. Artillery Lt. Colonel Mašín was injured and arrested at the action. During his escape from the flat on the 4th floor, roping down by a wire line, Artillery Staff Captain Morávek cut his index finger on the left hand. Sergeant Peltán suffered a minor injury but he escaped as well. SPARTA II restored the communication on June 15, 1841 but it was discovered by German Funkabwehr on June 28 already. Sergeant Peltán succeeded to escape from the flat in Horní ulice Street at Michle but the radio station was lost. Since July 8, 1941, the communication with London was maintained only by SPARTA I station which was operated by the radio telegraph group of doc Krajina. It was put into operation by Sergeant Klečka and Otto Linhart. Otto Linhart became one of the few people, participating in the radio communication of the home resistance movement either directly by operating the station or by letting his flat or house to be used for operation of the radio station, who were lucky to survive the war (his three brothers died). On October 3, 1941, Sergeant Klečka established contact with London from the building of Excise Tax Finance Division in Prague – Jinonice for the last time.

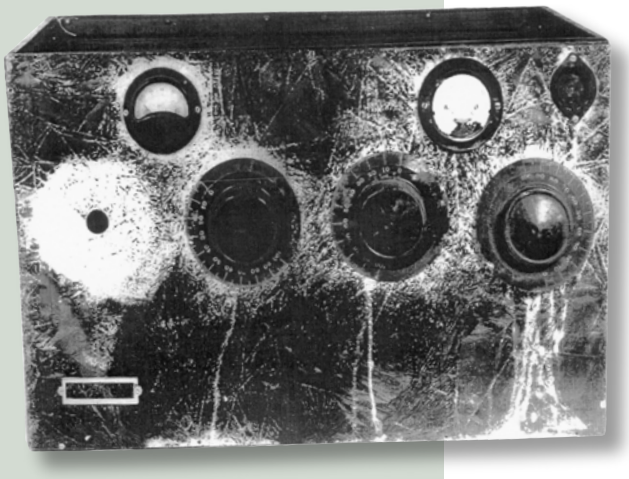
Shortly before midnight, he shot himself being encircled by Gestapo. The home resistance movement lost the communication with London. The wave of arresting affected the resistance so much that it was not able to restore the communication due to the shortage of material and personnel. Artillery Staff Captain Morávek together with Sergeant Peltán unsuccessfully continued in restoring the radio communication with London. The year 1942 became fatal for both of them. On March 2, Artillery Staff Captain Morávek was killed in a gun-fight with Gestapo; Sergeant Peltán met the same fate on July 11. In the future, the communication depended namely of the airlanded troops sent to Protectorate by the leadership in London. Thanks to SPARTA programme, they conveyed 16,000 messages, containing a number of very valuable intelligence data, abroad.

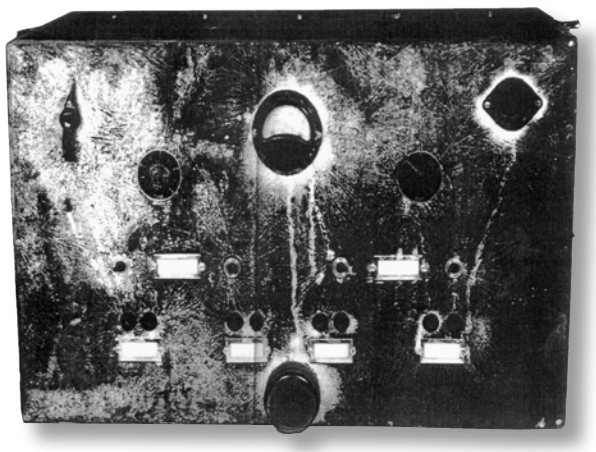


A part of the resistance movement radio station assembled by Spálenský, M. Sc (tech.), used for transmission even by Staff Captain Morávek

Maintaining of communication with home resistance movement was of vital importance for the Czechoslovak resistance abroad. It was the only way how to get objective information from the occupied country and, at the same time, to coordinate the resistance activities. Moreover, intensity of the home resistance movement played essential role in the negotiations with British and French side concerning cancelling the recognition of Munich Agreement which was, as a pre-war international agreement, still in force. Communication with the home resistance movement was the responsibility of the (Intelligence) Department II of Ministry of National Defence in London. The Department established a Special Group D which started recruiting suitable men for the planned secret operations in the occupied motherland in 1941. The selected candidates from the Czechoslovak Troops in Great Britain passed through a tough training organised by British Special Operation Executive (SOE). The training was aimed at the use of explosives, fire-arms and communication means. Paratrooper's training was also a part of the course.

The first airdrop of BENJAMIN operation was not successful. On April 16, 1941, WO Otmar Riedl, who was to deliver, beside other things, the spare crystals for radio station of home

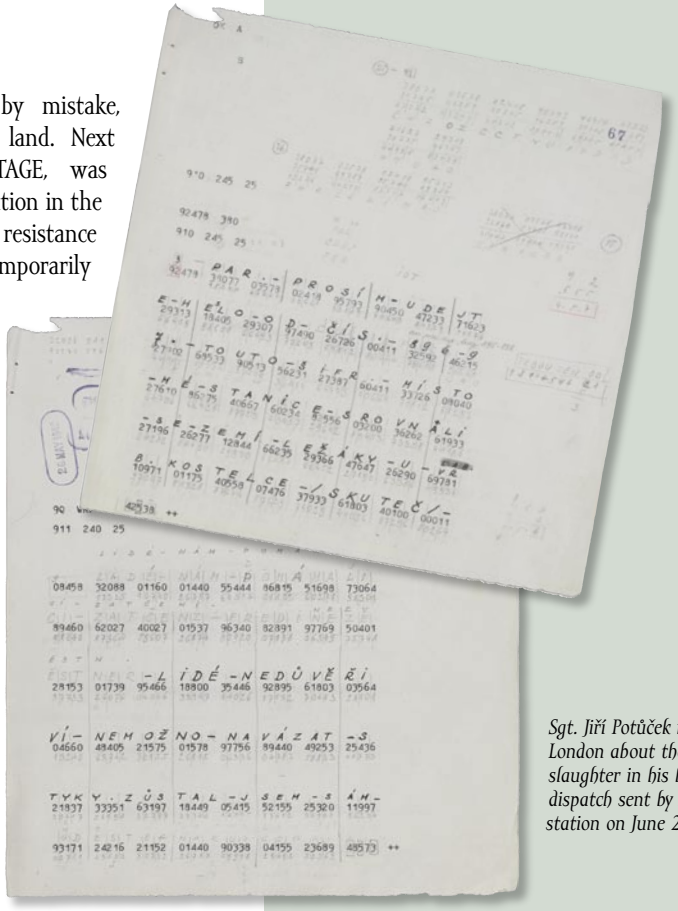




Power supply unit and transmission part of SPARTA I radio station

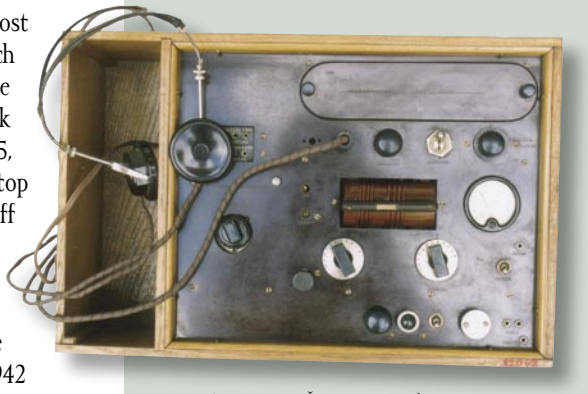
Jiří Potůček

resistance, was dropped, by mistake, to Austrian-Italian border land. Next operation, called PERCENTAGE, was enforced by the critical situation in the communication with home resistance movement which was temporarily interrupted after further wave of arresting. At night from October 3 to 4, 1941, Officer Candidate, Private First Class František Pavelka, carrying new MARK III transmitter for the home resistance movement, was dropped to the Protectorate land. Pavelka succeeded to contact the representatives of the Petitionary Committee Faithful We Shall Remain. However, within the wave of arresting connected with discovering of SPARTA I radio station in Jinonice, he was also captured and executed on January 11, 1943.



Sgt. Jiří Potůček informed London about the Ležáky slaughter in his last dispatch sent by LIBUŠE station on June 26, 1942

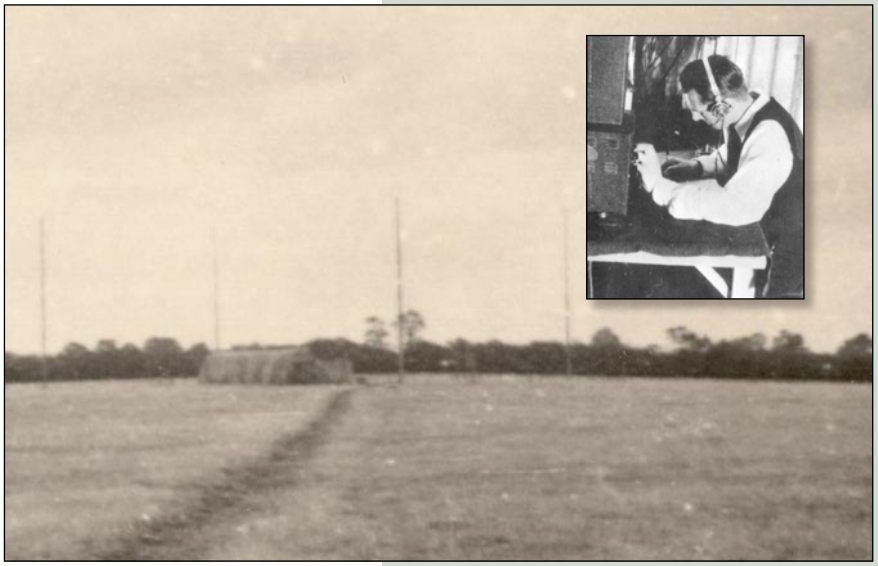
Two air-drops, which went down in history, were the part of the first wave of the air-drops from Great Britain (1941/1942). At night from December 28 to 29, 1941, two Infantry WOs, Josef Gabčík, Jan Kubiš (ANTHROPOID operation) together with Cavalry First Lieutenant Afréd Bartoš, WO Josef Valčík and Lance Corporal Jiří Potůček (SILVER A operation) were dropped into the Protectorate. While the first mentioned air-dropped group executed one of the most significant resistance exploits of World War II – assassination of substitute Reich Protector Reinhard Heydrich on May 27, 1942, the second air-drop became the most successful group air-dropped from Great Britain. Wireless operator Potůček established communication with London by means of LIBUŠE station on April 15, 1942 and maintained it till June 26, 1942. The group succeeded to contact the top representatives of the home resistance movement, namely doc. Krajina and Staff Captain Morávek. SILVER A used also wireless operator Lance Corporal Oldřich Dvořák, the only member of the STEEL air-drop, who landed on April 28, 1942. He was expected to operate the VĚRA radio station of home resistance movement. The successful assassination marked also the tragic fate of all the three air drops. WOs Gabčík, Kubiš and Valčík were killed in action on June 18, 1942 on the gallery and in the crypt of the encircled Orthodox church of Cyril and Method in Resslova Street in Prague. Captain Bartoš shot himself on June 21, 1942 being chased by Gestapo in Pardubice. Lance Corporal Potůček was shot by a Czech policeman when sleeping at Trnov by Pardubice on July 2, 1942. Lance Corporal Dvořák was shot when crossing Slovak border.



MARK III LIBUŠE - agency radio station

In this way, in summer 1942, London lost its communication with the home resistance movement. With regard to the lack of information, the next air-drop was tasked to establish the communication with already non-existing components of the resistance and with SILVER A group.

In the meantime, on September 28, 1942, the Military Radio Centre headed by Telegraph Corps Staff Captain Zdeněk Gold was transferred to its



The seat of Military Radio Exchange in Hockliffe

WO Václav Retich with radio station in Great Britain

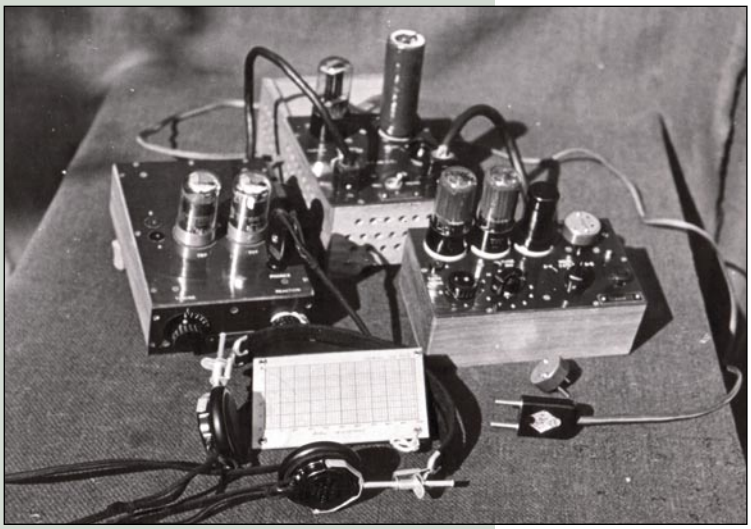
Polish AP-5 agency radio station

new seat in Hockliffe by Bedford where it started working immediately. The new station disposed of twelve perfect antenna systems. Six workplaces for radio telegraph operators were situated in a separate building; three 205W transmitters were keyed by remote control lines. This place served for radio correspondence till the end of the war and it dispatched nearly 30,000 messages.

In spite of the extremely unfavourable situation, the tree-membered ANTIMONY group, air-dropped on October 24, 1942, in the first wave of the air-drops (1942/1943), succeeded to accomplish its main mission. On December 1, 1942, its wireless operator Lance Corporal Lubomír Jasínek, using BARBORA (Polish A-2) radio station, established communication with Great Britain and conveyed the unfavourable information concerning situation in the home resistance movement. The group succeeded to enter into contact with doc. Krajina whose information was also sent to London. However, Gestapo found the traces of ANTIMONY very soon and, on January 16, 1943, Lance Corporal Jasínek poisoned himself during his arresting in Rovensko pod Troskami.

Using the radio equipment of the group, Germans tried to play a number of Intelligence games under the code-name of HERMELIN. The radio communication with BARBORA station (operated by the Germans) was the only communication at disposal of the Intelligence Department in 1943.

The third wave of air-drops (1944–1945) was the most successful from the viewpoint of establishing the communication between the occupied country and Britain. At night from April 3 to 4, 1944, two airborne groups, BARIUM and CALCIUM were air-dropped here. The BARIUM performed lively activity through MARTA station from Hradecko to London till its destroying on January 15, 1945. Wireless operator Officer-Candidate Sergeant Josef Žižka committed suicide after being arrested by Gestapo. The CALCIUM arranged contacts with the resistance movement organisations "Council of Three" and "Intelligence Brigade". The Council of Three was one of the most significant organisations of the resistance movement in the second half of the war operating namely on the territory of Moravia. One of its commanders was Army General Vojtěch Boris Luža who was killed in a gun-fight with the Protectorate Police in October 1944. The Council of Three organized a number of sabotage actions till the end of the war and, in May 1945 it actively participated in the Czech National Uprising. Wireless operator of CALCIUM group WO Karel Nemczyk maintained the communication with London by means of ZDENKA station till the end of the war. Beside the transmission of a number of valuable intelligence information, he managed to use the radio to arrange several reception areas for air-drop of material.



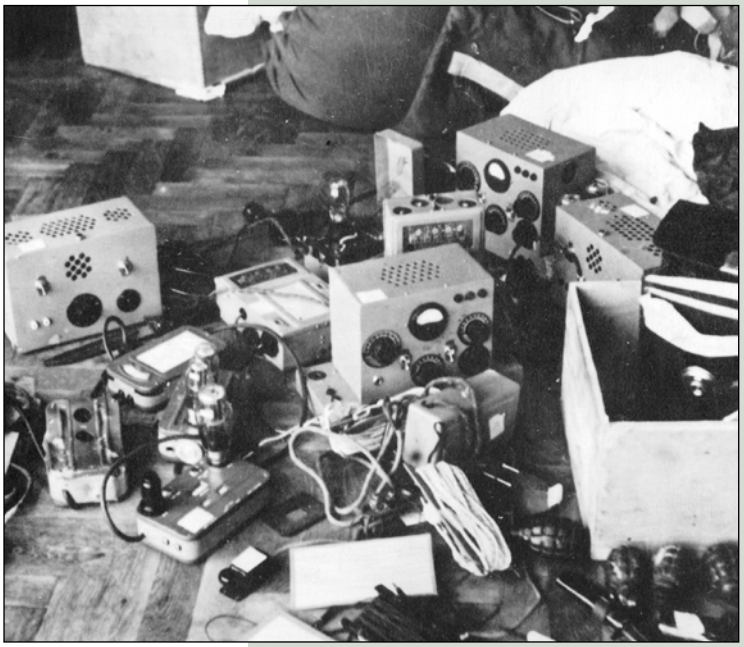
British agency radio station used at Prague Uprising

At night from April 12 to 13, 1944, CARBON and CLAY groups were air-dropped. The first mentioned group never met together. However, commander of the group succeeded to find many co-workers. Using two transmitters made by a home radio amateur Jaroslav Kuchař, First Lieutenant Bogataj managed to maintain communication with London till the end of the war and to arrange also several places for air-drop of weapons. The CLAY group developed an extensive network in Moravia and Officer-Candidate Sergeant Čestmír Šikola maintained busy radio operation by means of EVA station till the end of March 1945. SPELTER group was another successful team air-dropped on May 5, 1944 to Třebíč region. One of the wireless operators, WO Jaroslav Kotásek was killed in a gun-fight with Gestapo but other two wireless operators, Sergeant Jan Vavra and WO Rudolf Novotný established contact with home resistance movement. Using radio station of the radio amateurs Ladislav Fiala and František Doležílek who assembled the radio station in December

Soviet JACK agency radio station

1944, they managed to establish the communication with London and to maintain it till the end of the war. The group arranged delivery of 9 tons of weapons.

At night from February 16 to 17, 1945, PLATINUM-PEWETER group was air-dropped. The two AP-5 radio stations which were in the equipment of the group were damaged. New radio stations, Model 3 Mk.II-B2, were delivered to the group on March 23 within BAUXITE operation. WO Alois Vyhňák maintained communication till the end of the war. Sergeant Jaroslav Klemeš moved to Prague on April 23, 1945, and provided radio communication for the Czech National Council and leadership of the Prague Uprising with London. The last air-drop operation of Special Group D was BAUXITE which was executed on March 23, 1945. Its only member, Captain Pavel Hromek, established and maintained the communication with the Central in Great Britain and Supply Base in Italy.



Soviet JACK and TENSOR agency radio stations confiscated by Gestapo

Tactics of employment and operation of the agency stations of the western air drops was developed during the whole World War II. The original radio operation was based on the communication regulations of pre-Munich Czechoslovak Defence Force which was intended for the communication of field armies but it proved to be quite insufficient for the communication of agency stations. This situation was criticized even by British side. On the basis of experience from the air-drops of the first two waves, namely the successful SILVER A group, they accepted a number of changes, which should result in higher security and preparedness of the air-dropped groups. It was applied in case of ANTIMONY air-drop already. The new, more perfect system of radio communication came into force at the beginning of the year 1944 and thus, it could be used only by the third wave of the air-drops. In spite of the immense effort, bravery and casualties of the paratroopers and their co-workers at home, the primary mission of majority of the operations, i.e. establishment of radio communication with the Protectorate, could be accomplished for a short time only.

The Communist resistance movement also used the radio communication with Soviet Union. In the first years of existence of the Protectorate, there were a number of agency stations working in Prague which maintained the communication between illegal Central Committee of Czechoslovak Communist Party and the emigration in Moscow. At the beginning of the year 1944, it was discovered and Germans started a counter-game which should help them in penetrating into the resistance movement groups. The counter-game was not successful and finished in April 1941. Before June 22, 1941, when Germany invaded Soviet Union, the activity of the intelligence network of the Military Intelligence Central Administration of Red Army (GRU) was controlled from Soviet Consulate and Trade Mission in Prague. For the case of war, they have prepared a radio communication that should be provided by the group of Air Force Major Josef Jedlička by the help of Soviet agency stations of JACK type. On October 8, 1941, Air Force Major Jedlička was arrested and betrayed all the members of the Soviet agency network as well as other Czechoslovak resistance fighters. In a short time, the group was arrested and the radio stations confiscated. One of the stations was operated by well-known writer of romance Otakar Batlička who worked together with František Chyba and Bohuslav Bachura within the communication programme called MAGDA. He was arrested on October 14, 1941 and executed on February 13, 1942. Soviet Intelligence Service was trying to restore the interrupted communication during the whole time of the war. Since 1942, the Intelligence Centre nearby Moscow trained namely two-membered air-drops (resident and radio operator) equipped with agency radio stations of TENZOR, SEVER and NABLA type. The GRU and NKVD air-drops were sent to the Protectorate insufficiently prepared very often to the addressees of already arrested mediators and with the document elaborated according to the instructions sent in the radio counter-games organized by Gestapo so that they could be quickly identified by any Police control as Soviet paratroopers. Some individuals became

Soviet TENSOR agency radio station

Legendary American Handie-Talkie radio station, BC-721 option for aviation

British W.S. radio station No. 19 and Canadian W.S. radio station No. 58 (upper)

Mk.1 – British telephone apparatus

British telephone apparatus, type L

informer of Gestapo. The radio counter-games helped to misrepresent Soviet Intelligence Service and to neutralize a number of air-drops shortly after their jump. At least 30 air-drops participated by 60 Czechoslovak citizens were executed without permission of the Czechoslovak Military Mission in the U.S.S.R. till the end of the year 1943. After many disappointments, the success arrived as late as March 1943 when the air-drop of Vetiška and Klein crossed Poland and established contacts with illegal leadership of Communist Party of Czechoslovakia. Other air-drop of Procházka and Vohradník sent with the same task was also successful.

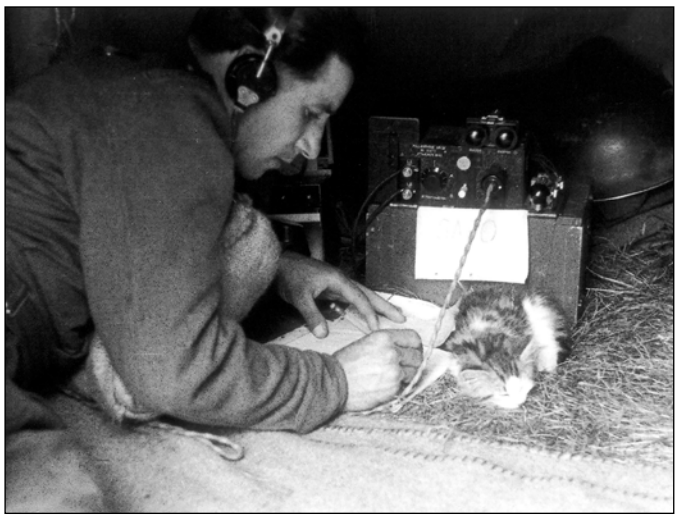
On March 15, 1944, Command of Czechoslovak Military Units in the U.S.S.R. established a Special Purpose Detachment stationed in Yefremovo. Infantry Staff Captain Josef Knop was appointed commander of the unit, the mission of which was to train paratroopers able to perform namely the organisational, intelligence, communication and diversion tasks on the territory of our country. The training was aimed at wireless operators and diversionists. 50% of the members of the unit passed through radio operation and codework exercise controlled by Telegraph Corps Captain František Skokan personally. At the conclusion of the training, the unit disposed of 35 wireless operators working with agency stations of SEVER type. In April 1944, the unit moved to Sadagura and was subordinated directly to the Command of the 1st Czechoslovak Army Corps in the U.S.S.R. as a part of the combat security units. The unit was under the command of Infantry Second Lieutenant Josef Černý and its name was Special Operations Company. Moscow leadership of CPC tried to abuse the unit to establish contact with the Communist resistance in the Czech lands and in Slovakia because it was afraid that the non-existence of communication will limit the possibility to influence politically the preparation of the resistance movement for the uprising against Nazis. In the final phase of the war, the Special Operations Company participated in the combat activities of the 1st Czechoslovak Army Corps namely by long-range reconnaissance. Its members penetrated to the rear of the enemy and, using their radio stations, they conveyed the acquired information to the command.

Communication of Slovak resistance movement with London leadership was executed by courier through Istanbul. Paratrooper, Staff Captain Jaroslav Krátký (KARAS operation) who arrived at Slovakia by train from Istanbul and immediately established contact with Slovak illegal movement was tasked with establishing a radio communication. He succeeded to develop an extensive intelligence activity. His messages were transmitted by OTO and VÍT radio stations which were delivered to Slovakia from Turkey. The stations were given to wireless operators who maintained the communication while continuously changing the transmitting positions. On June 10, 1944, MANGANESE group was air-dropped into area of Veľké Uhrovce. Its mission was to inform London, independently of Slovak resistance groups, about the preparation to uprising. Having established the contact with Slovak resistance, the group moved to Banská Bystrica. However, General Ján Golian inhibited the operation of MARIENKA radio station before starting the uprising. Activity of the group was coordinated by Staff Captain Krátky who, after outbreaking the uprising, became liaison Officer of London MOND at the Headquarters of the 1st Czechoslovak Army in Slovakia till the arrival of General Viest. After the break-up of the uprising, the communication with London was made by the wireless operator of the group of Officer Candidate, Sergeant Drahomír Vaňura using MARIENKA radio station. Till October 28, he received and transmitted tenths of messages. On September 15, 1944, other air drop, having intelligence and communication missions, COURIER group, landed in Slovakia. Its communication equipment was destroyed at landing. Using the radio station of Captain Krátký, the group managed to ask for delivering of spare parts. Finally, it was Sgt. RAF Ada Robinson (Chaviva Reik) who handed over the radio station to the group in October 1944. However, the station was destroyed very soon. It was done probably by a group of Soviet partisans. In January 1945, wireless operator Corporal František Holý was killed by partisans. Sgt. RAF Ada Robinson was captured by Germans on October 31, 1944 and executed one month later.

The wireless operators of home resistance movement ran the highest possible risk because the occupation organs disposed of very modern technical equipment which helped in their discovering. In spite of this fact, a number of males and females risked their lives in order to maintain the communication of home resistance movement with the centres abroad. Many of them were killed directly at their radio stations, a number of other operators died at the place of execution and in concentration camps.

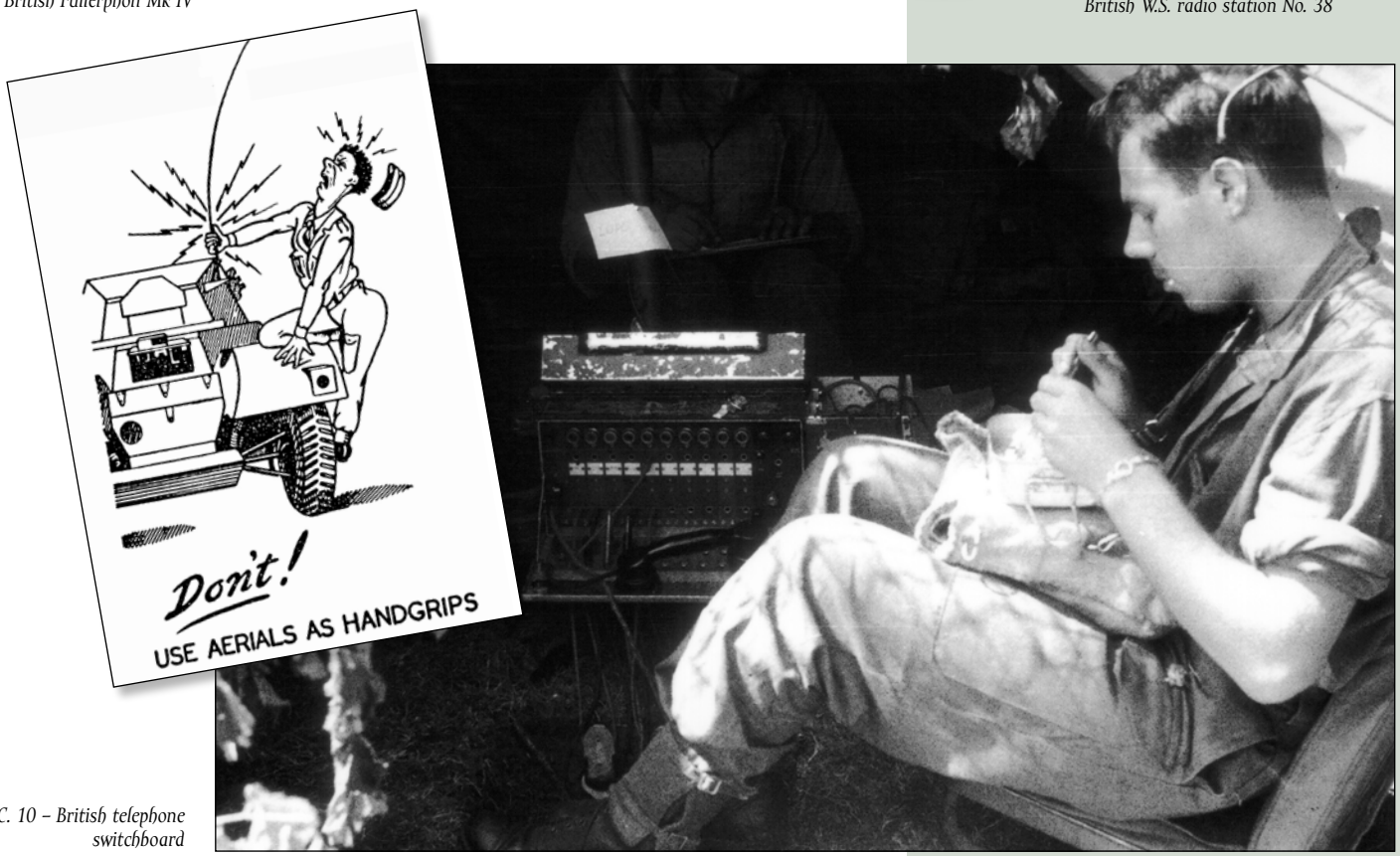
COMMUNICATION EQUIPMENT IN THE COURSE OF WORLD WAR II

The Czechoslovak troops, fighting on the fronts of World War II against Nazi Germany, used namely the communication equipment of the armies on the territory of which they operated. The first portable radio stations, used in Great Britain, were: W.S. No. 8, W.S. No. 18 and W.S. No. 38. However, the combined-arms W.S. No. 19 radio station produced in the infantry, automobile and tank versions became the most widely used radio station. These radio stations were characterized by an obsolete production technology and use of common commercial base of spare parts. Portable telegraph apparatus for advanced units of Fullerphon Mk. IV, Mk. V and Mk. VI type became an interesting part of armament. American radio stations, namely the BC-610 transmitters of Hallicrafters Company were also a part of equipment of the Czechoslovak units. Use of automobile containers i.e. the conception which has been experiencing a renaissance in the last years, was typical for the American communication equipment in World War II. Small radio stations for the lowest command-level of BC-310 Handie-Talkie type became absolute novelty.



British Fullerphon Mk IV

British W.S. radio station No. 38



U.C. 10 – British telephone switchboard

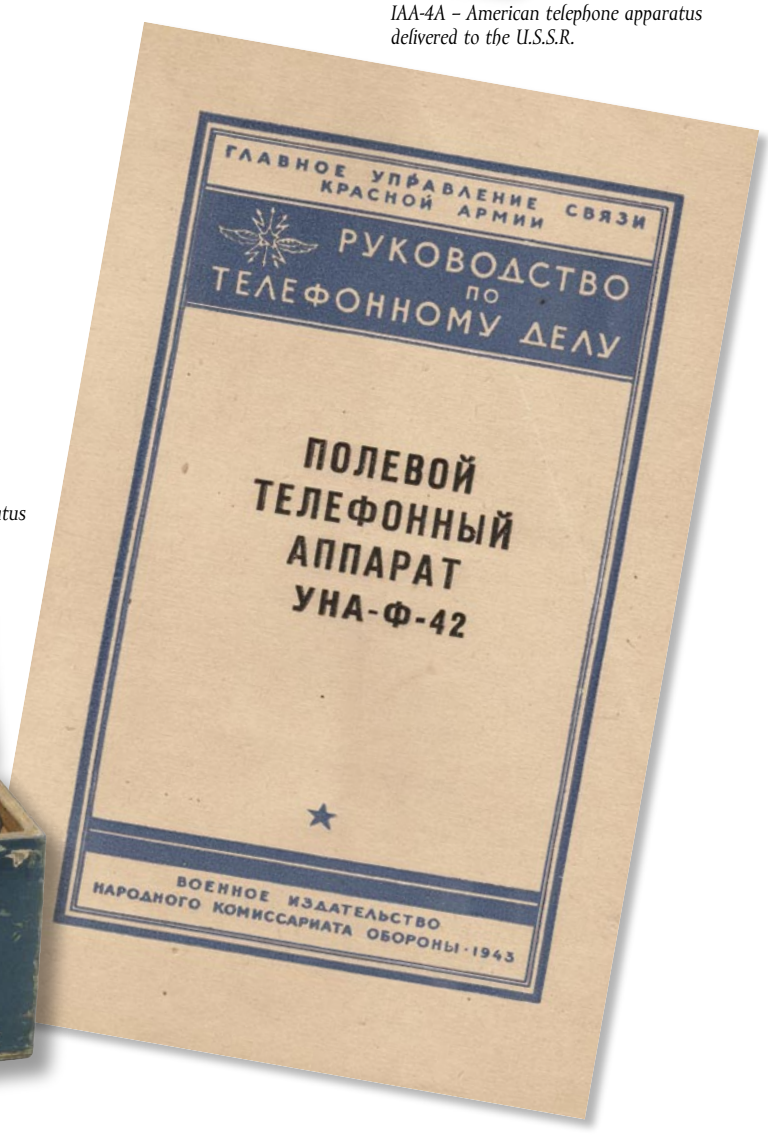
In Soviet Union, the communication equipment experienced the most intensive development from the middle of the thirtieth. The 13R, 12RP, RB, RBS and RBM radio stations belonged to the most important types. Artillery observers were equipped with A7a stations. The 2nd Czechoslovak Airborne Brigade in the U.S.S.R. was equipped with SEVER and PRIMA radio stations.

RBM – Soviet radio station

IAA-4A – American telephone apparatus delivered to the U.S.S.R.

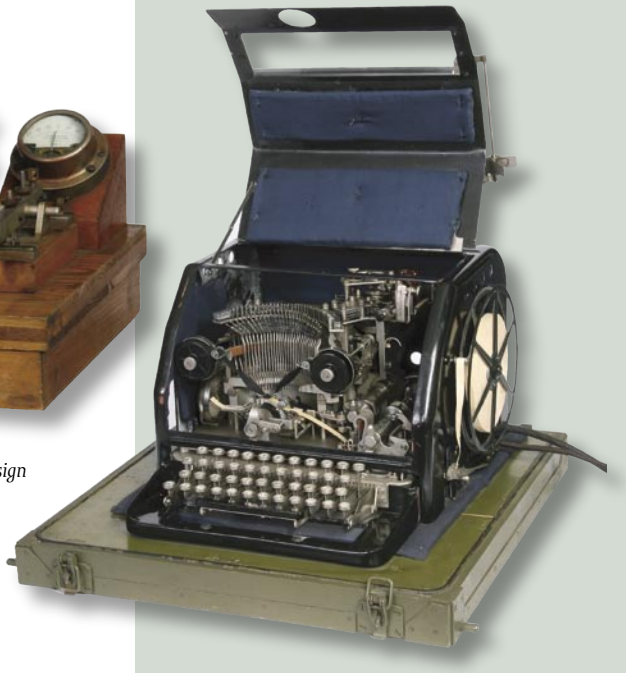
Radio receiver of Soviet 10RT tank station

UNA-I-42 – Soviet telephone apparatus



EE – American telephone apparatus delivered to the U.S.S.R.

A Soviet field telegraph apparatus of Siemens design



ST-35 – Soviet teleprinting machine

The agency radio stations which were in the equipment of the air-drops from Great Britain and Soviet Union and the radio stations of home resistant movement represent an independent chapter. Main types of the Soviet agency radio stations were JACK, NABLA, TENSOR and SEVER. Great Britain developed a variety o agency radio stations during the war. The most often used types included MARK III, MARK V,

TENSOR – Soviet agency radio station

NABLA – Soviet agency radio station

"Morava" – Soviet agency radio station used by Partisan units

MARK V – British agency radio station

MARK XV – British agency radio station

Agency radio transmitter – ŠIMANDL

MARK VII PARASET, MARK XV, 3Mk.I-B and 3Mk.II-B. Polish factory in Great Britain produced the agency radio stations of A-2, AP-5 and OP-3 types. Technician of Military Radio Centre, WO Antonín Šimandl designed a ŠIMANDL transmitter and MARJÁNKA receiver which were also used by some air-drops. Equipment of the air-drops was gradually improved. The groups of the third wave of the air-drops (1944/1945) were equipped by two sets of radio stations. One station was of a lower power but easy portable (MARK V in a case, 3 Mk. II-B2 or Polish AP-5) and the other station of higher power, used for the operation using electric network (ŠIMANDL transmitter with MARK V receiver).

The communication equipment experienced unprecedented development in the course of World War II. German design school represented by Telefunken and Lorenz concerns was a bearer of the most modern technologies. First generation of German communication equipment from the turn of the twentieth and thirtieth did not bring any modern elements. However, preparation of blitzkrieg expected a close cooperation of all army branches and an immediate use of the information acquired by reconnaissance. The second generation of German communication equipment arrived in the years 1936–1940 and brought many revolutionary elements. A number of stations was characterised by using modular construction, injection moulding

5 W.S.c – German radio transmitter

Ukw.E.e – German radio receiver

15 W.S.E.b – German radio station

Mw.E.e – German radio receiver

80 W.S.a – German radio transmitter

of the chassis made of aluminium and magnesium alloy by using the legendary RV12P2000 electron valve. The representatives of this generation involved namely Torn. E.b; the most often used portable receiver of World War II (produced in the amount of 300,000 pieces); Fu 5 tank radio set, consisting of Ukw.E.e. receiver and 10 W.S. transmitter; Fu 8 tank radio set for higher command level, consisting of a top-quality Mw.E.e.c receiver and 30 W.S.a transmitter or FuG X Aviation communication set.

Gradual miniaturization accompanied by the decrease of weight and energy demand of the devices brought, beside other things, other types of Torn.Fu.i. and last but not least, the K1.Fu.Spr.d. "Dorette", that time miniature radio station for the lowest command level. Possibility of enemy monitoring of the friendly radio operation was minimized by the use of legendary German Engima cryptographic machine.

German Engima cryptographic machine

FeldFu – German radio station

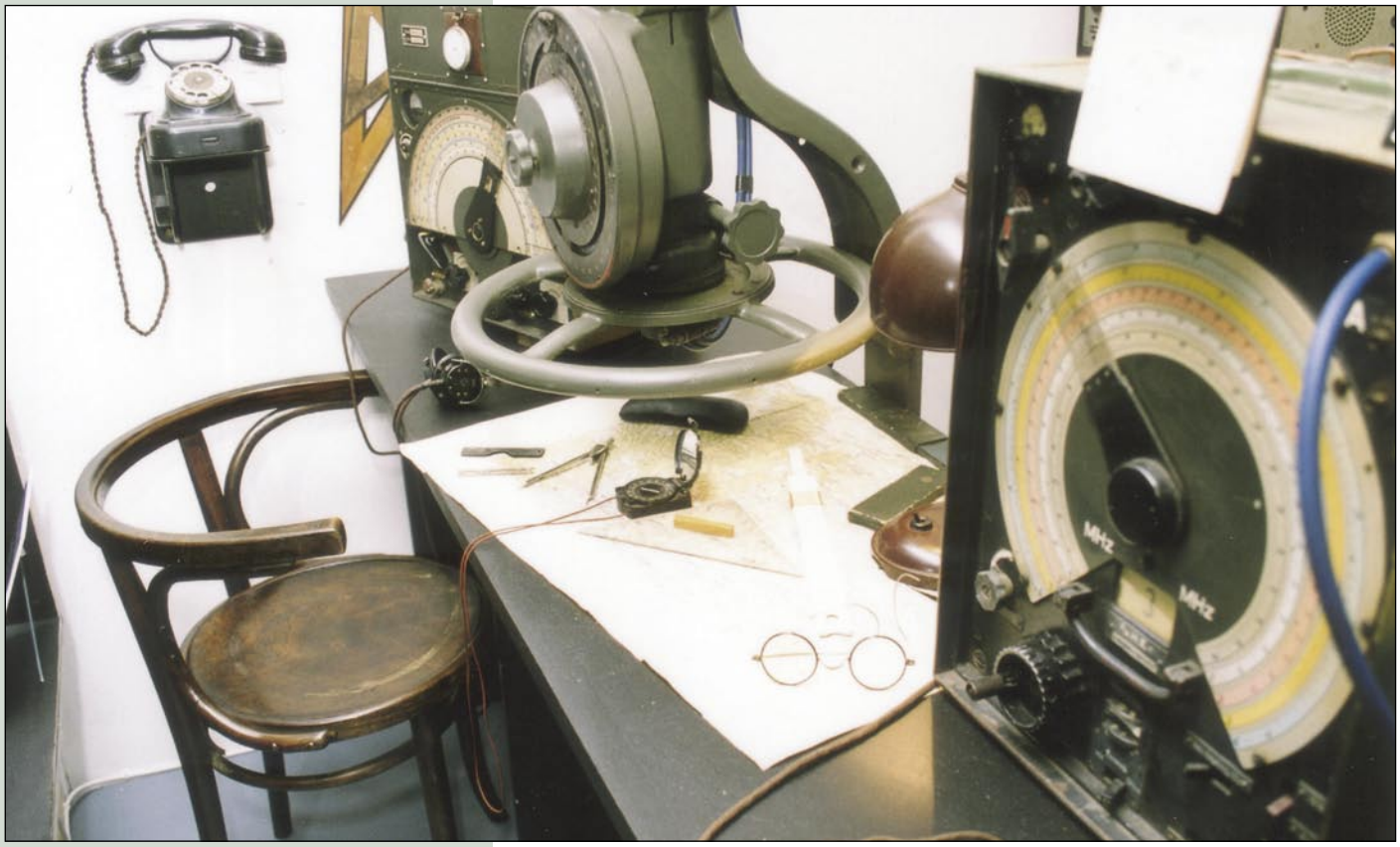
Torn.Fu.g – German radio station

German Kienzle clock for radio stations

German Army disposed of very modern stations of radio reconnaissance. The EP2 goniometric receiver together with Fu.H.E.f. and Fu.H.E.c. monitoring receivers were the most important representatives of this equipment. Correspondence of agency radio stations was monitored e.g. by means of AEG disk recorder of Ton.Sd.1. type. Shortly after occupation of the Czech lands, Germans began searching for illegal transmitters used by home resistance movement to communicate with the stations abroad. Monitoring and direction finding stations (Funkmeßstellen) as well as the mobile detection and ranging units directly subordinate to the Reich Security Main Division (Reichssicherheitshauptamt – RSHA) existed on the territory of Reich since the year 1937. Radio Direction Finding Service Centre (Funkmeßleitstelle Berlin-Spandau) was located in Berlin.

EP2a – German goniometric receiver

Fu.H.E.f – German monitoring receiver



Radio Detection Service workplace

Funkmeßstelle Süd-Ost Prag equipment in May 1945

In the Protectorate, they established (Funkmeßstelle Süd-Ost Prag) with the central in former "noble-women institute" at Prague Castle with its branch in Brno. The Prague Central employed 40 female wireless operators and 20 searchers furnished with the most modern equipment for intercepting, monitoring, recording, direction finding and detection of premises of the illegal transmitters. In the first wartime years, the Radio Direction Finding Service used the following strategies:

1. The operators in central offices, equipped with surveillance receivers, monitored the short wave bands.
2. In case of detecting an unknown radio station, the operators of several direction finders determined azimuth at which the signal was received and, by means of these azimuths, they located the position of illegal transmitter.
3. The data were delivered to the search unit responsible for the area where the transmitter was found.
4. Search unit sent mobile detection and direction finding vans to the area of transmission.
5. Position of the station was specified by gradual direction finding and approaching of the vehicles.
6. Searching of premises of concrete flat was performed by walking searchers equipped by belt direction finders.
7. Actual liquidation of the illegal radio station was performed under direct control of relevant Gestapo Division.

AEG – German tape recorder

DMG 2T "Elster" - German radio-relay station

Kapsch Fu GP.c – German belt radio direction finder

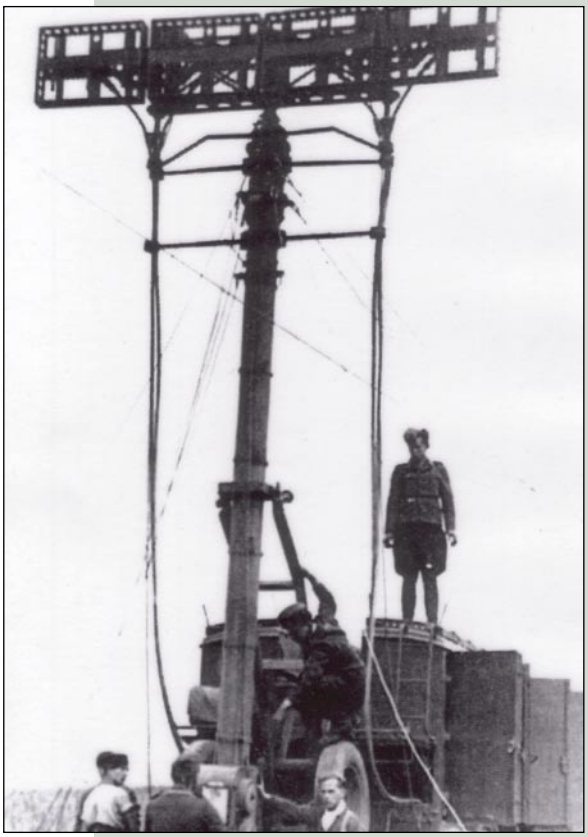
Se 109/3 – German agency radio station

Lorenz Concern worked on the improvement of radio-relay (directional) communication means of German Army throughout the whole WVII. Objective of this equipment was to replace the laboriously installed and defective line communication. Using retransmitting stations, they maintained communication from Berlin even with African battlefield. These kind of equipment included DMG 2T (FuG 01) "Ester", DMG 7K "Michael" and DMG 3aG "Rudolf".

The original Czechoslovak electro-technical industry which produced the communication material for the Czechoslovak Defence Force before the war, produced tenths of types for Nazi Army now. The radio-technical and electro-mechanical production on the territory of the Sudeten and he Protectorate of Bohemia and Moravia had the largest share and financial amount in the wartime production in the sphere of light industry. In 1939, Germans acquired considerable production capacities of the Czech electro-technical industry including the large companies of e.g. Mikrofona, Philips Hloubětín, Radiotechna Přelouč, Telegrafia Pardubice. Křižík and Military Telegraph Workshops in Kbely. Immediately after the occupation of the Czech lands, two factories were reorganised to wartime production which was planned by Germans before March 15, 1939, already. It concerned Mikrofona in Strašnice and Military Telegraph Workshops in Kbely which were attached to Ostmark Werke Concern in Vienna.

In the first phase of the war, Military Telegraph Workshops accomplished production of the radio stations elaborated for Czechoslovak Defence Force, manuals were translated to German and the radio stations were allocated to the training units. Altogether, 11 items of the Czechoslovak wireless equipment were taken over to the armament and equipment of Luftwaffe and Wehrmacht.

Next production programme included the antennas for minor radio stations and radio vans. Moreover, they started development of so called "desert telephone". It was a kind of radio relay means, in fact, a wireless telephone with the range up to 3–5 km intended for use on African battlefield. However, Germany

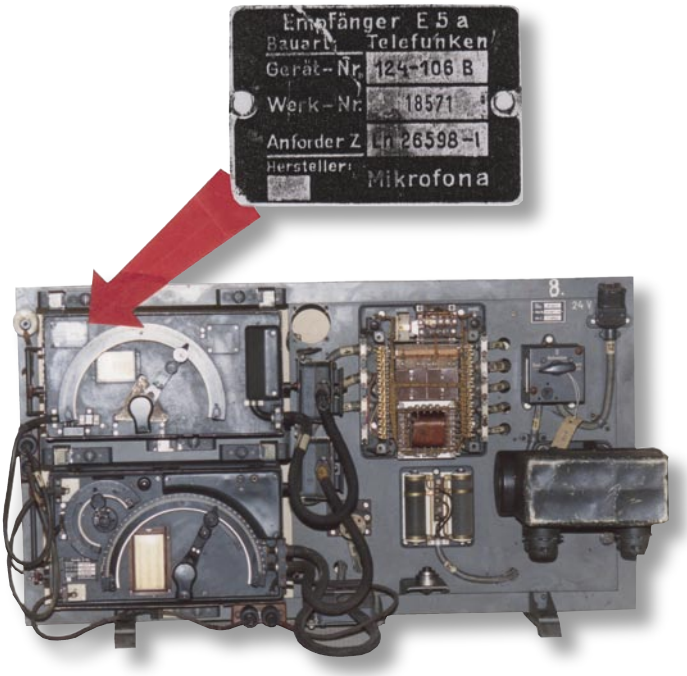


Antenna system of DMG 7K "Michael" radio-relay station

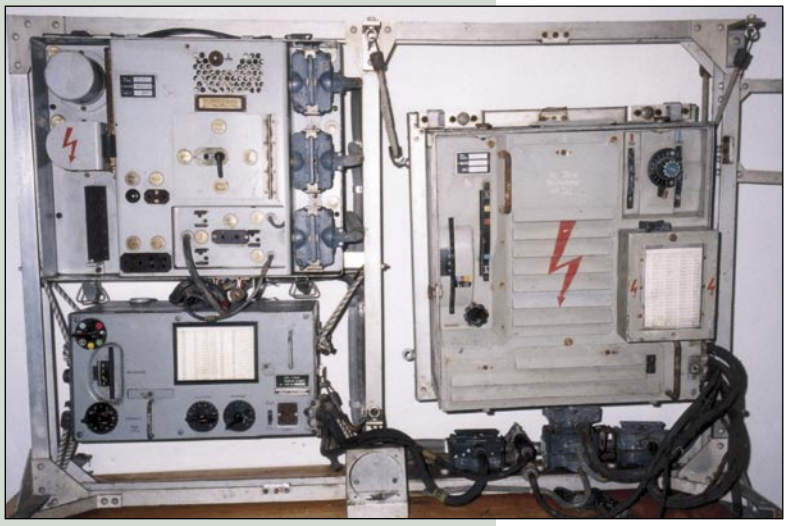
capitulated in Africa before the development of telephone was accomplished. The development was accompanied by the production of Mw.E.c. tank receivers for higher command level.

At the beginning, the Strašnice Mikrofona was only assembling the components delivered from Germany according to the production documents. It was so e.g. in case of FuG VII radio set produced for Ju 87 and older type of Mw Bf-109 aircraft. The order concerning its production was given to Mikrofona in the course of the year 1939 already. Within the years 1940–1943, Mikrofona produced smaller series of transmitters of 1–3 kW power for the needs of German Kriegsmarine (Navy). It was a single-part production only.

In 1944, Military Telegraph Workshops started production of a unified Fu 5 tank radio station and the radio stations for tank destroyers. Strašnice Mikrofona achieved the highest production in 1944 and its production programme included FuG 25 A active radio responder which was mounted on the board of each German aircraft for its own identification i.e. response to the interrogation of the air defence radar using the friend-foe identification (IFF). Beside the two companies which were mentioned above, there were other important electro-technical factories on the territory of the Protectorate which started the wartime production at the turn of the years 1943 and 1944. Prague Philips factory in Hloubětín produced, beside other things,



FuG VII aviation radio station produced by Mikrofona, Strašnice



FuG V aviation radio station produced by PHILIPS, Hloubětín

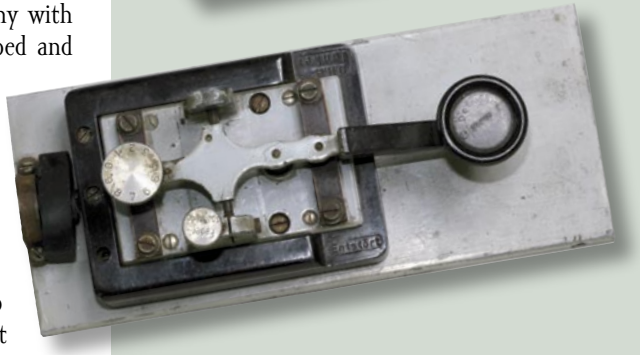
T-33 – German telephone apparatus

Electronic valves produced by LORENZ Company, Vrchlabí

RHODE & SCHWARZ submarine measuring receiver

navy short-wave and long-wave radio stations of 40/70W type. Next product of this company was the measuring receiver for submarines designed by Rhode Schwartz Company. It identified British aircraft according to their high-frequency signal emitted by altimeter. The receiver worked within UFW band, about 500MHz. It is the frequency the use of which by commercial TV was started as late as 1970. Prague ALWAYS factory produced receivers and various parts of aviation and submarine deck locator, Model FuG 200. At the same time, they provided a single part production of antenna systems of detection and ranging devices for cruisers and destroyers. Přelouč Radiotechna changed to wartime production also at the turn of the years 1943 and 1944. Electric servomechanisms of the control systems for V2 missiles became the most important production programme. In addition to that, it produced 80E transmitter which was designed by the design Division of Lorenz Company and smaller series of different measuring and direction finding devices. Telegrafia Pardubice supplied a medium radio station under the code name of "MARINE-GUSTAV" for the Kriegsmarine (Navy).

The first-rate 17-valve superheterodyne i.e. highly sensitive receiver, size: 30x30x30 cm, is also worth of mentioning. This miniature design was enabled by the newly introduced RV12P2000 electronic valve installed in this receiver. Production of new weapon systems was conditioned by the development and production of new types of the electronic valves, the production capacities of which had still been searched for. In 1939, Berlin Lorenz Company found the areas convenient for the production of valves in Vrchlabí, in the former cotton mill which ceased its production in 1931. Here, Lorenz developed a factory for production of special electronic valves for decimetric band, Later on, they produced about 20 types of electronic valves, including the RV12P2000 valve, for military purposes. In 1944, the factory reached the highest number of 2,800 employees. In 1944, the valve production plant of Radiotechna Company in Prague-Holešovice, which was renamed to Telefunken Prague, started production for the needs of German Army with yearly capacity of 100,000 valves. Fernesh Company in Dolní Smržovka developed and produced television chains for German Blohm-Voss BV 246 "Hagelkorn" glider bomb. It was a bomb of special construction furnished with wings made of reinforced concrete. They were produced experimentally in many Models, while Model "F" was a remote controlled by a television chain. They developed also IS 9 supericonoscope i.e. a camera tube for television for this bomb. After the war, this production became a basis for the development of the first Czechoslovak television introduced in 1948 at International Radio Exposition (MEVRO).



In the years of WWII, the Czech lands produced several tenths of final radio technical products for military purpose. Their complexity, labour constant and number of the components can be compared with the TV receiver in the seventieth. Amount of individual produced types can be counted in ten thousands.

T.M.1939 – French telephone apparatus

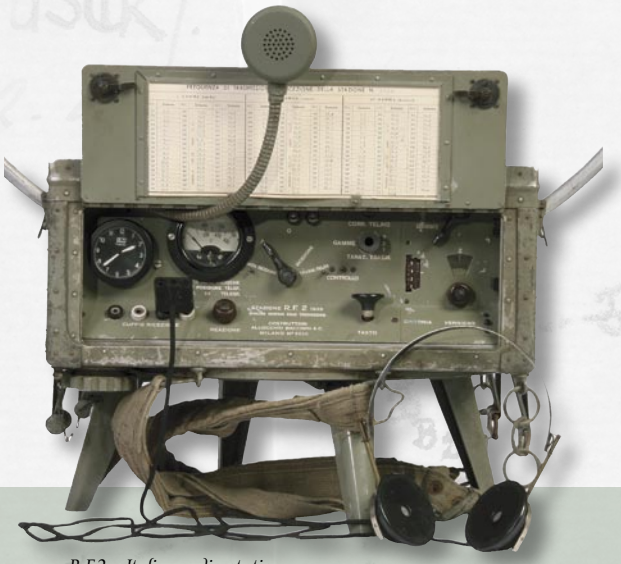
Bell – Belgian telephone apparatus

MARK XV, British agency radio station

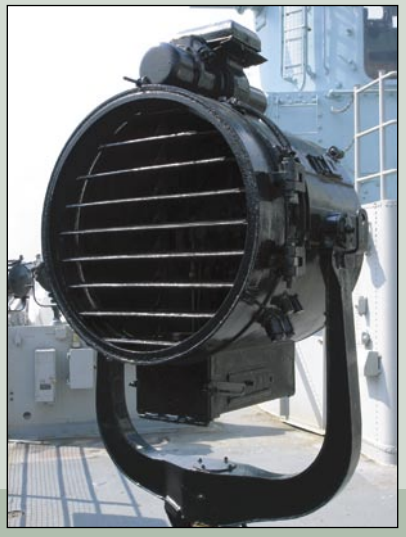
Fusprech.f radio station for tank destroyers

RU I – Latvian radio station

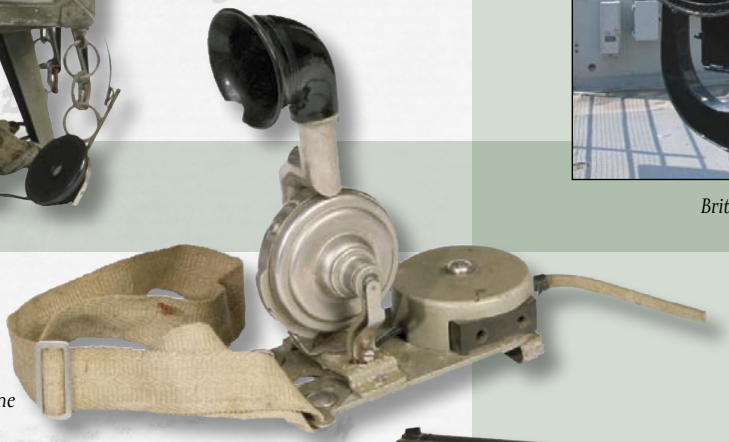
Srandard – Hungarian radio station



R.F.2 – Italian radio station



British naval signalling apparatus (HMS Belfast)



Italian neck microphone

German double-barrel aviation flare pistol of L type

M.C.R. I "Keks" – British agency receiver

Italian telephone apparatus for aviation

Torn.Fu.d, German radio station

Mk III, Canadian Air Force telegraph key

SIGNAL TROOPS IN THE FIRST POST-WAR YEARS 1945–1955

Brig. General Jozef Marko (*1904-†1981)

In the years 1924-1926, Jozef Marko graduated from Military Academy in Hranice. In the twenties, he served as Platoon Leader of the Telegraph Battalions No. 3 and 1; in the thirties, he was Company Commander of the Telegraph Battalions No. 5, 1 and 6. In the years 1936-1939, he was teacher at Military Academy in Hranice. After origin of Slovak State, he was appointed Commander of Signal Corps and since May 1939, he was in command of Telegraph Battalion No. 1 in Turčiansky Sv. Martin. He actively participated in the preparation of Slovak National Rising and after its break up, he was appointed Commander of Signal Corps of the 1st Czechoslovak Army in Slovakia. In the years 1945-1948, he was Commander of Signal Corps of the Main Staff, MOD. In 1948, he retired and later on, in the years 1949-1950 and 1958-1963, he was kept in prison. In 1991, he was fully

Košice Government Programme, declared before the end of World War II, on April 4, 1945, became the first government document of the first Czechoslovak post-war government. It represented a compromise between the representatives of the main components of the resistance movement at home and abroad and, in fact, it was an indication of the way towards socialism. In military sphere, it set down, beside other things, that *"the organisation, armament and training of Czechoslovak Defence Force will be the same as the organisation, armament and training of Red Army"*. However, this idea proved to be considerably problematic from the very beginning.

The conclusion that the next war could threaten Czechoslovakia only from the side of Germany was accepted immediately after the end of the war operations in Europe. Therefore, the prediction of national defence should not principally differ from that of pre-Munich. Organisation was based on the conception of co called big army which would guarantee the security and sovereignty of Czechoslovak Republic. According to initial ideas, the peacetime Army should consist of 180,000 men, Out of them – 120,000 conscripts. Based on the Government Decision, dated May 15, 1945, the 1st Czechoslovak Army Corps in the U.S.S.R was reorganised to the 1st Czechoslovak Army which represented the organisational basis of the Czechoslovak troops. Infantry brigades of the original Army Corps were transformed into divisions and the signal battalions into signal regiments. On May 25, 1945, the government approved the first peacetime organisation of Czechoslovak Army called as "temporary" that time. Foundations of the organisational structure of the Army consisted in four Commands of Military Districts located in Prague, Tábor, Brno and Bratislava. Each military district had two army corps and each corps consisted of two infantry divisions and directly subordinate formations and units. The Main Staff had, beside the support units, directly subordinate reinforcement troops representing the strength of a tank corps, heavy artillery division, four combined air force divisions and one signal regiment. Organisation of the Army was based on the experience from the just ended war and it reflected the increasing role of special kinds of army branches including the telegraph corps.

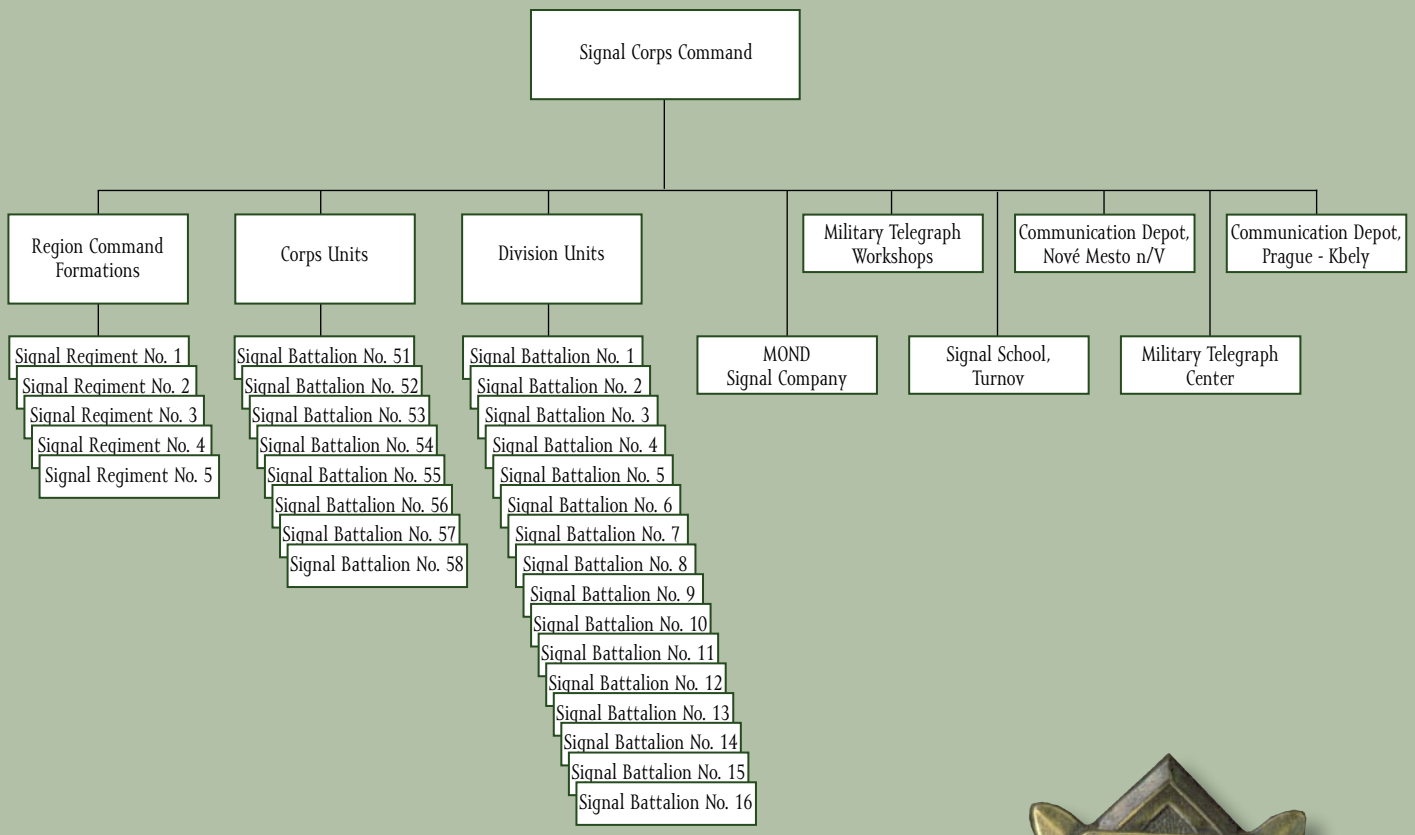
Formations of Telegraph Corps began the re-constitution shortly after the end of WWII. On July 13, 1945, Ministry of National Defence decided to change the name of Telegraph Corps to Signal Corps. It resulted in the change of names of a number of commands and units. First of all, they established five signal regiments. Signal Regiment No. 5 was assigned to provide communication for the command of the Main Staff and MOND; the other units were subordinate to the commands of individual Military Districts.


VĚCNÍ VĚSTNÍK
MINISTERSTVA NÁRODNÍ OBRANY
Ročník 1945 Vydáno dne 18. srpna 1945 Číslo 17.
145.
Telegrafní vojsko, změna názvu na spojovací vojsko
146.
Doplnění sboru rotmistrů z povolání

As far as the army corps and infantry divisions, the communication was provided by signal battalions; in case of regiments – by signal companies and in case of combined-arms battalions, the communication was provided by signal platoons. Moreover, there was a new Signal Corps Command established within the Main Staff. Its subordinate units were as follows: newly restored Military Telegraph Workshops, Military Radio-Electric Centre and Communication Depot No. 1 and 2. Signal Company of MOND and Military Weak-Current Institute became new elements in the organisation.

On October 28, 1945, former commander of Signal Troops of the 1st Czechoslovak Army in Slovakia, Signal Troops Colonel Jozef Marko was appointed Commander of Signal Corps.

Table of organization of the Signal Corps as of June 1945



The following signal units and facilities were established in the course of the year 1945:

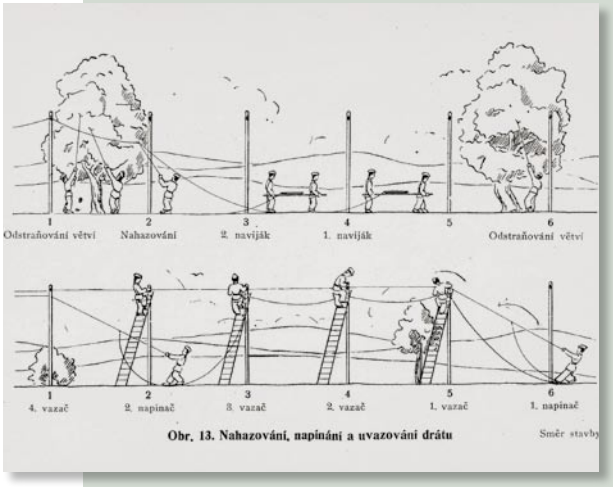
- MOND Signal Company;
- Military Telegraph Workshops, Prague – Kbely;
- Signal Depot No. 2, Nové Mesto nad Váhom, June 1, 1945;
- Signal Depot No. 1, Prague – Kbely, June 4, 1945;
- Military Radio-Electric Centre, Prague Petřín, July 1, 1945;
- Signal School, Turnov, September 15, 1945.

Other established formations:

- Signal Regiment No. 1, Jaroměř (on the basis of former 1st Signal Battalion of the 1st Czechoslovak Army Corps in the U.S.S.R), subordinated to the Command of the 1st Military District;
- Signal Regiment No. 2, Benešov, subordinated to the Command of the 2nd Military District;
- Signal Regiment No. 3, Brno, subordinated to the Command of the 3rd Military District;
- Signal Regiment No. 4, Turčianský Sv. Martin, subordinated to the Command of the 4th Military District;
- Signal Regiment No. 5, Kutná Hora, subordinated to the Command of the 2nd Region (earmarked for MOND);

In July 1945, the following signal battalions were established to provide communication for the army corps and divisions:

- Signal Battalion No. 51, Prague, subordinated to the Command of Corps I;
- Signal Battalion No. 52, Hradec Králové, subordinated to the Command of Corps II;
- Signal Battalion No. 53, Plzeň, subordinated to the Command of Corps III;
- Signal Battalion No. 54, Tábor, subordinated to the Command of Corps IV;
- Signal Battalion No. 55, Brno, subordinated to the Command of Corps V;
- Signal Battalion No. 56, Olomouc, subordinated to the Command of Corps VI;



Obr. 13. Nahazování, napínání a uvazování drátu

Shortly after the war, Signal Battalion No. 3 used an altered original pre-war banner of Telegraph Battalion No. 6

German field teleprinter Hell from the year 1941 fixed up with Czech labels used in post-war period

- Signal Battalion No. 57, Trenčín, subordinated to the Command of Corps VII;
- Signal Battalion No. 58, Banská Bystrica, subordinated to the Command of Corps VIII;
- Signal Battalion No. 1, Prague, (formed on the basis of the 2nd Signal Battalion of the 1st Czechoslovak Brigade in the U.S.S.R.),subordinated to the 1st Division Command;
- Signal Battalion No. 2, Banská Bystrica, (formed on the basis of the 3rd Signal Battalion of the 1st Czechoslovak Brigade in the U.S.S.R.),subordinated to the 2nd Division Command;
- Signal Battalion No. 3, Kroměříž, (formed on the basis of the 4th Signal Battalion of the 3rd Czechoslovak Brigade in the U.S.S.R.),subordinated to the 3rd Division Command;
- Signal Battalion No. 4, Šala nad Váhom, (formed on the basis of the 5th Signal Battalion of the 4th Czechoslovak Brigade in the U.S.S.R.),subordinated to the 4th Division Command;
- Signal Battalion No. 5, České Budějovice, subordinated to the 5th Division Command;
- Signal Battalion No. 6, Brno, subordinated to the 6th Division Command;
- Signal Battalion No. 7, Olomouc, subordinated to the 7th Division Command;
- Signal Battalion No. 8, Hranice na Moravě, subordinated to the 8th Division Command;
- Signal Battalion No. 9, Nové Mesto nad Váhom, subordinated to the 9th Division Command;
- Signal Battalion No. 10, Prešov, subordinated to the 10th Division Command;
- Signal Battalion No. 11, Plzeň, subordinated to the 11th Division Command;
- Signal Battalion No. 12, Litoměřice, subordinated to the 12th Division Command;
- Signal Battalion No. 13, Mladá Boleslav, subordinated to the 13th Division Command;
- Signal Battalion No. 14, Hradec Králové, subordinated to the 14th Division Command;
- Signal Battalion No. 15, Kolín, subordinated to the 15th Division Command;
- Signal Battalion No. 16, Písek, subordinated to the 16th Division Command.

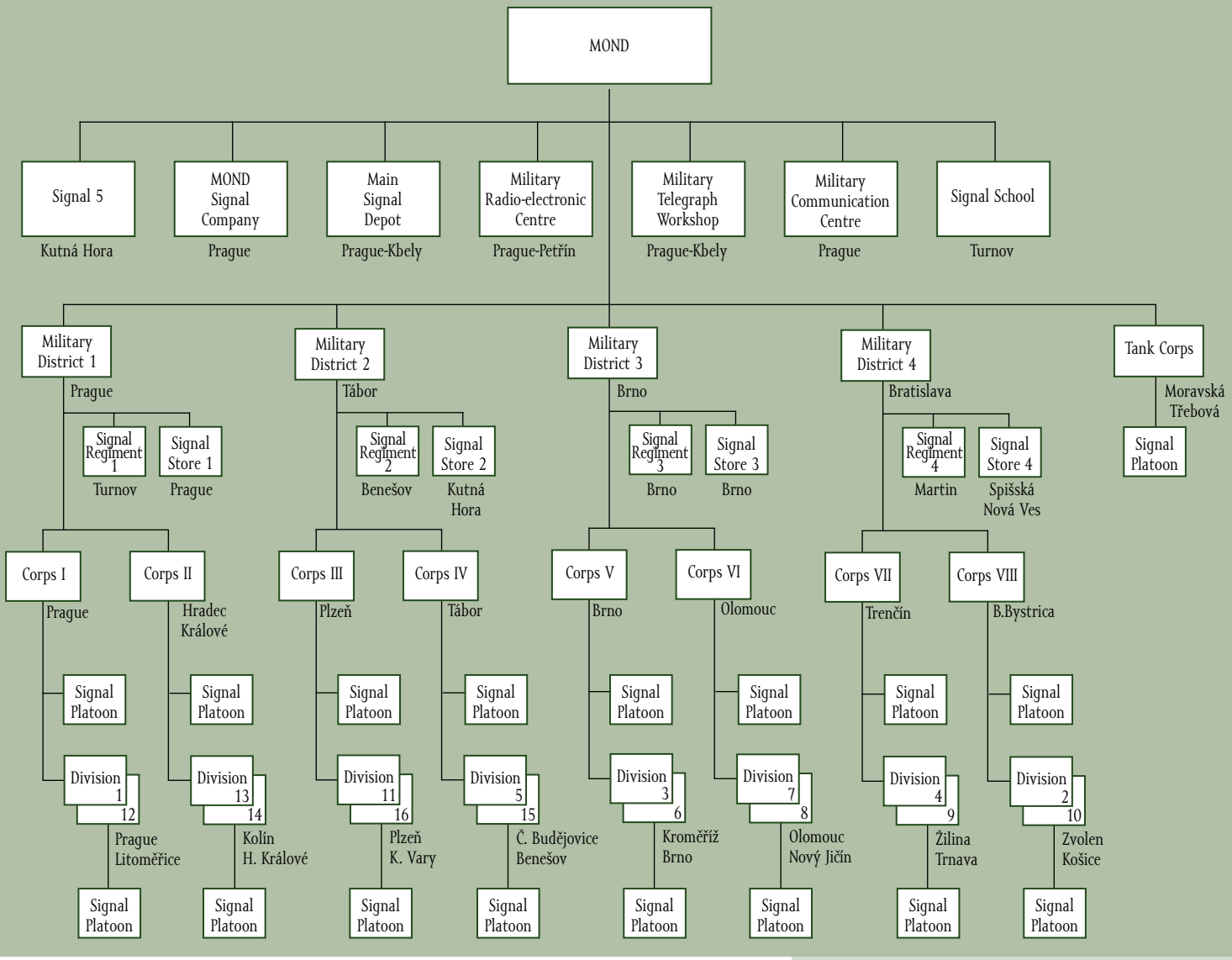
There were a number of changes in location and organisation of the units made in the course of the years 1945-1946. Relocation of Signal Battalion No. 52 from Hradec Králové to Hořice in Podkrkonoší and its subordination to the command of Signal Regiment No. 5 (on September 1, 1945) was the most important. The same day, Signal Battalions No. 1, 13, 14 and 15 were subordinated to the Signal Regiment No. 5. and, at the same time, Signal Battalions No. 51 and 52 were subordinated to the command of Signal Regiment No. 1. Signal Battalions No. 5, 11, 16, 53 and 54 were transferred to subordination of the command of Signal Regiment No. 2; Signal Battalions 3, 6, 7, 8, 55 and 56 - to the command of Signal Regiment 3 and Signal Battalions No. 4, 9, 10, 57 and 58 were subordinated to the command of Signal Regiment No. 4.

Further total reorganisation of Czechoslovak Army, so called "improved" was accomplished by October 1, 1945. It respected the existing possibilities of development of the Army and concluded the phase of transformation of the Czechoslovak units abroad. Its basic contribution was namely the transformation of four infantry divisions to rapid divisions, one for each Military District. Tables of organisation of the Czechoslovak Army elaborated in the course of the year 1945 outlasted the end of national state of alert as of December 31, 1945. Elaboration of long-term concept of military development of the state as well as development Czechoslovak Army should proceed according to original plans. However, the elaboration of new Czechoslovak doctrine was in fact more and more delayed.

In the middle of September 1945, the Signal School in Turnov was re-established again. It included the existing Signal School of the 1st Czechoslovak Army Corps in the U.S.S.R. located in Nové Mesto nad Váhom the liquidation of which was finished on October 20, 1945. The Signal School in Turnov started its operation on September 17, 1945 under the command of Signal Troops Colonel Otakar Starý, who was in command of the former Telegraph School in Turnov in the years from 1936 to 1939.

On September 30, 1945, the Signal Battalions No. 1 up to 16 and No. 51 up to 58 were disbanded. On October 1, 1945, Signal Depot No. 1 was reorganised to Main Signal Depot. At the same time, three new stores for the commands of individual Military Districts were established. Signal Store No. 1, Prague, was subordinated to the Command of the 1st Military District; Signal Store No. 2, Kutná Hora, was subordinated to the Command of the 2nd Military District and Signal Store No. 3, Brno, was subordinated to the Command of the 3rd Military District. The original Signal Store No. 2, Nové Mesto nad Váhom was renumbered to Signal Store No. 4 and subordinated to the Command of the 4th Military District. On November 6, 1945, Signal Regiment No. 1 was awarded honorary name of "Hero of Soviet Union Captain Otakar Jaroš".

Organisation chart – October 1, 1945



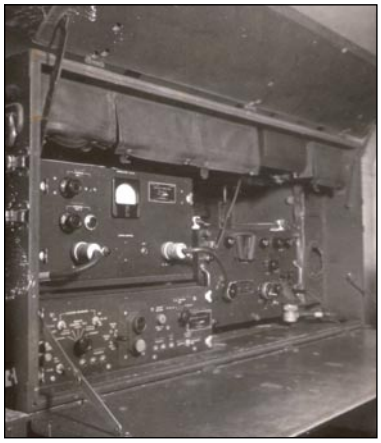
In spring 1946, Military Weak-Current Institute was attached to Military Technical Institute as its electro-technical department. Military Telegraph Workshops were also disbanded at the same time. In 1946, Signal Regiment No. 5, Kutná Hora, was subordinated again to the Signal Corps Command. On September 30, 1946, Signal Regiment No. 1 of the Hero of the U.S.S.R. Captain Otakar Jaroš was moved from Jaroměř to Turnov and on September 20, 1946, Signal School was moved from Turnov back to Nové Mesto nad Váhom.

In autumn 1947, they organized the first post-war end-of-training circle exercise of troops. The exercise revealed all the maladies of the newly developed Army, which stemmed from the absence of theoretical clarity of the principles of modern battle procedures, insufficient training of commanders, and level of training as well as material and technical equipment. Serious deficiencies were found also in the sphere of communication.

New entire reorganisation of peacetime structure of Czechoslovak Army was accomplished by October 1, 1947. Its objective was to create and organisational framework with a long-term validity. The organisation was based on the requirement to secure primarily the southwest part of the state border which was expected to be the future area of war operations. The new organisation reduced the strength of the Army to 160,000 persons. Military Districts remained preserved but the number of army corps dropped from eight to six. At the same time, three infantry divisions were reorganised to independent

Line communication kept up its importance all the time





Czechoslovak Army used two Studebaker US6 radio vans equipped with American SCR-399 radio stations originally included in the armament of the 1st Czechoslovak Army Corps in the U.S.S.R.

A number of prototypes, e.g. Dodge T214 and Aero A-150 cable laying vehicles, originated in that period

infantry brigades. Simultaneously, on October 1, 1947, the Signal Regiment No. 5 was moved from Kutná Hora to Pardubice. The same day, they disbanded Signal Store No. 1, Prague, and reorganised the Main Signal Depot, Prague, to Signal Store No. 1, Prague, subordinate to the Command of the 1st Military District.

The always closer relationship with Soviet Union, influenced by Munich trauma and conviction that the organisation and armament of Red Army was the decisive factor of the defeat of Nazi Germany resulted in a gradual taking over of Soviet models not only in the military sphere. Internal political situation sharpened in autumn 1947. In February 1948, the political crisis culminated in a political upheaval. Grasping of power by the Communist Party of Czechoslovakia (CPC) resulted in liquidation of all existing democratic structures. CPS started extensive political repressions against actual and fabricated opponents. The communist dictatorship gradually penetrated into political, economical and cultural life of Czechoslovak society. In this way, Czechoslovakia became one of the satellite states of Soviet block and its future began to be set down in Moscow. During the February crisis of the cabinet, CPC managed to neutralize the Army, i.e. to exclude it from the possibility to interfere in the clash of powers. In this way, the Army as a whole didn't take part in actual February events. It was namely thanks to Special Order of Minister of National Defence General Ludvik Svoboda who called on all the soldiers to keep quite to prevent their embroilment in the political quarrels and thus, the Army remained untouched by the internal political crisis. However, delusiveness of this appeal was proved in the next days of the upheaval. Several days after the assumption of power in the state, the communists discharged hundreds of democratically thinking soldiers. Political persecution in the first period after February 1948 was an inseparable part of similar process proceeding in the whole society. In the same way as in the civilian life it was also in the Army that the regime removed uncomfortable people from the command positions and other functions; then, they were arrested and charged with fabricated crimes. Till the year 1953, the Army experienced so called "cleanup" of the commander's corps. In the course of the "cleanup", about 53% career officers had to leave the Army. In majority of cases, they were members of the first or second resistance movement i.e., the heroes participating in the combat against Nazi Germany. Only in the period from February 1948 to February 1949, they discharged totally 1,337 soldiers serving on command positions, out of them – 30 Generals, 102 Colonels and 243 Lt. Colonels. The "cleanup" affected directly the Signal Corps. On March 27, 1948, its commander Brig, General Jozef Marko was sent for leave, on September 1948, he was dismissed to reserve and subsequently, he was imprisoned for 19 years.

German trophy telephone switchboard

Col. General Bohumil Teplý (*1901-†1971)

In 1927, Bohumil Teplý graduated from Military Engineering College and Telegraph Corps Officers School. Since the year 1927 till the year 1936, he served on basic commanding positions. In October 1936, he was appointed Commander of Warrant Officers and Reserve Officers School at the Telegraph School in Turnov. In the period of occupation, he worked as a teacher of technical college in Prague. He was active in the Resistance Movement. Since September 1942, he was kept in prison in Prague, Dresden and Ebrach. Since April 1948 till April 1957, he served as the Commander of Signal Corps, MOD.

On April 1, 1948, Brig. General Teplý became commander of Signal Corps. The most tragic fate expected former Chief of Signal Service of the 1st Czechoslovak Army Corps in the U.S.S.R. Lt. Colonel František Skokan. In January 1948, he was withdrawn from the study at K.J. Vorošilov Higher Academy of the Main Staff in Moscow as a person hostile to Soviet Union. On July 8, 1950, he was condemned for a charge of high treason and espionage and on October 7, 1950, he was executed in Pankrác prison in Prague.

The definitive integration of Czechoslovakia to Soviet block resulted in a number of organisational changes in the sphere of development of the Czechoslovak Army, which affected even the Signal Corps. Before that, just during the revolutionary days, on March 3, 1948, the Signal Regiment No. 4 was awarded honorary name of "Slovak National Uprising". New peacetime organisation of Czechoslovak Army, respecting the existing international and internal political conditions, was to come into force on October 1, 1949. However, with regard to the worsening international situation, partial reorganisation and relocation of Czechoslovak Army was done before October 1948 already. On October 1, 1948, Communication Store No. 1 was relocated from Prague to Hradec Králové. On December 15, 1948, after disbanding the command of the 2nd Military District in Tábor, the Signal Regiment No. 2, Benešov and Signal Store No. 2, Kutná Hora (disbanded on October 1, 1949) were subordinated to the Command of the 1st Military District in Prague. On January 1, 1949, they established Armoury No. 22, Hradec Králové and subordinated it to the 5th (Signal) Section of the 2nd Department (Technical) of MOND. On October 1, 1949, they established Battalion of Military Meteorological Stations for the needs of monitoring and direction finding service and Military Signal Mechanic's Training Centre in Pardubice for the training of Signal Corps specialists. In October 1949, they implemented namely the long-time prepared reorganisation and relocation of Czechoslovak Army. It preserved the scheme of three Military Districts which were approximately copying the territory of the historical lands (Bohemia, Moravia and Slovakia). The units of special kinds of arms were divided into four types according to personnel repletion and tasks. It involved the formations and units possessing complete strength (first-echelon units), reduced strength (second-

Installation of lines

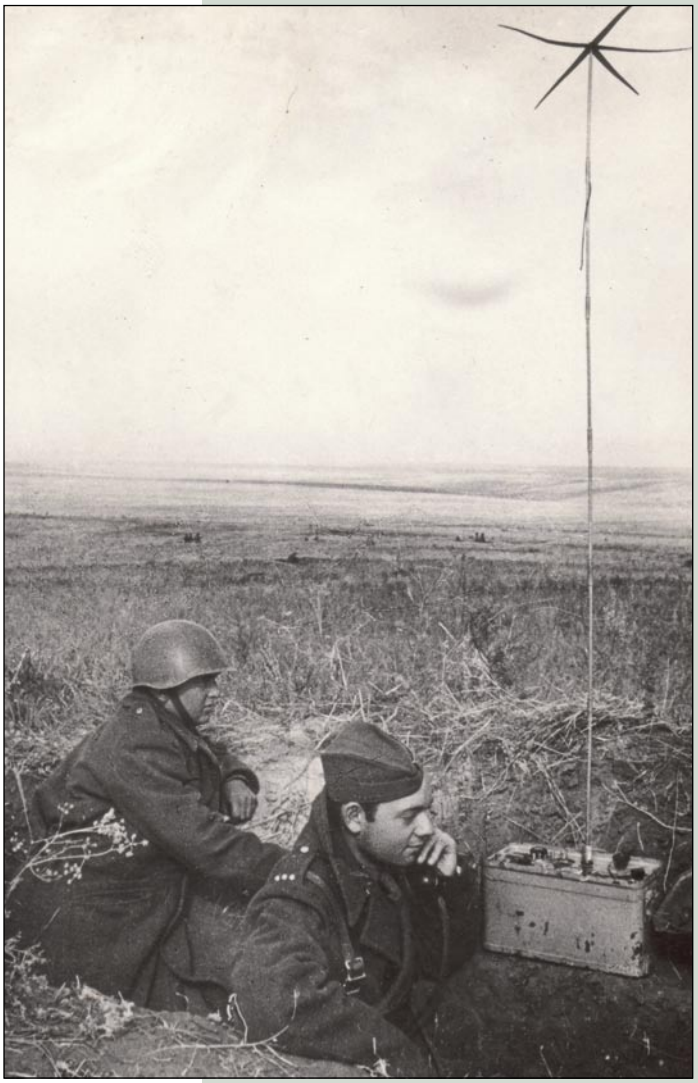
echelon units), framework units (reserve units for the case of mobilisation) and the units with standard strength. Having accomplished the reorganisation, the peacetime Army consisted of ten infantry divisions, three rapid divisions, tank corps and independent tank regiment, artillery division and five artillery brigades, two air force divisions, eight battle, fighter and bomber regiments, four field engineer regiments and railway regiment, four signal regiments and other formations, units and facilities. Prescribed peacetime strength of the Army was 124,900 men.

With regard to the assumption that the world conflict will break out in the course of the years 1953–1954, the CPC Central Committee, on its sessions in 1950 and 1951, decided to speed up the development of Czechoslovak Army and to achieve its full combat preparedness and readiness till the year 1953. Development of the Army became priority and the life of the whole society had to be subordinated to it. On April 25, 1950, Alexej Čepička was appointed Minister of National Defence. He replaced Army General Ludvík Svoboda who was losing the support of Moscow. Arrival of the new minister started preparations for a new reorganisation of the peacetime structure of Czechoslovak Army which should be rebuilt according to Soviet model as soon as possible. The reorganisation was planned in three stages till the year 1952 with the stress laid on the development of tank and mechanized troops, artillery, air defence, engineer, signal and chemical troops. In May 1950, first group of Soviet advisors arrived at Czechoslovakia. In 1955, their number reached 264 and tenths of them were working in the armament producing factories. Making use of the advisors, the Soviet General Staff enforced its plans to reshape the Czechoslovak Army according to Soviet model. In August and September 1950, Ministry of National Defence and the Main Staff were reorganized in advance. The Main Staff changed its name to the General Staff. The Signal Corps Command remained being its part. On September 20, 1950, the peacetime organisation of the Czechoslovak Army experienced substantial changes. Existing Commands of Regions were disbanded and replaced by the commands of two Military Districts – 1st Military District located in

A7b – Soviet battalion radio station produced by licence in Czechoslovakia

Prague which included the territory of Bohemia and Jihlava region and 2nd Military District with its Command based in Trenčín and including the remaining region of Moravia and Slovakia. The new higher commands took over also the signal regiments and depots of the cancelled region to their subordination. The largest-scale reorganisation and relocation of peacetime structure of Czechoslovak Army in the whole period of the communist Czechoslovakia was executed in November and December 1950. The essential change represented namely establishment of three types of combined-arms formations – infantry, tank and mechanised.

Essential organisational changes in the Signal Corps were made in 1950 as well. In October and December 1950, the Signal Regiments No. 2 and 3 were disbanded and replaced by gradually formed signal battalions within combined-arms divisions possessing full or reduced strength while the framework divisions disposed of signal companies only. Signal battalions within Army Corps Commands were formed at the same time. The Signal Regiment No. 1 of and Signal Regiment No. 4 of "Slovak National Rising" which remained in the subordination of the 1st and 2nd Military District provided a part of their units for the formation of the signal units within divisions and corps. At the close of the year 1950, a part of the Signal Store No. 1 was used as a base for restoration of the Main Signal Depot. As a result of the organisational changes, the name of Signal Corps Command of the Main Staff was changed to Signal Corps Command of the General Staff. The following units and facilities remained directly subordinate to the Command: Signal School in Nové Mesto nad Váhom, Military Signal Mechanic's Training Centre in Pardubice, Battalion of Military Meteorological Stations in Prague, Military Radio-Electric Centre in Prague-Petřín and MOND Signal Company. Strength of the Signal Corps increased to nearly 2% of the entire strength of Czechoslovak Army. The following changes were made within the Signal Corps in the period of several months from autumn 1950 to spring 1951:



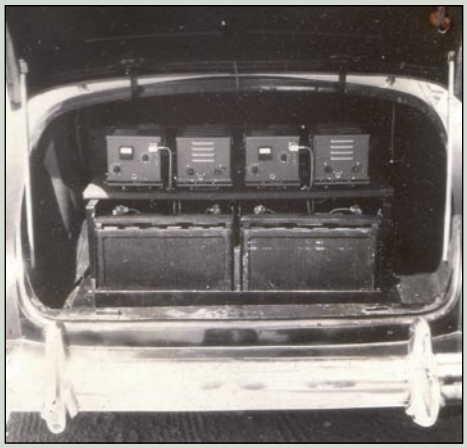
RBM - Soviet radio station

Subordinate units as of September 20, 1950:

- Signal Regiment No. 1 of the Hero of Soviet Union Otakar Jaroš, Turnov, subordinate to the Command of the 1st, Military District;
- Signal Regiment No. 2, Benešov, subordinate to the Command of the 1st Military District;
- Signal Regiment No. 3, Brno, subordinate to the Command of the 2nd Military District;
- Signal Regiment No. 4 of Slovak National Rising, Turčianský Sv. Martin, subordinate to the Command of the 2nd Military District;
- Signal Store No. 1, Prague, subordinate to the Command of the 1st Military District;
- Signal Store No. 3, Brno, subordinate to the Command of the 2nd Military District;
- Signal Store No. 4, Nové Mesto nad Váhom, subordinate to the Command of the 2nd Military District;

By October 1, 1950, Signal Regiment No. 2, Benešov, was disbanded and the following units were established:

- Signal Battalion No. 13, Dvory by Karlovy Vary, (formed on the basis of the III/1 Signal Battalion, Kadaň) – subordinate to the Command of the 12th Division;
- Signal Battalion No. 2, Sušice, (formed on the basis of the I./2 Signal Battalion, Benešov) – subordinate to the Command of the 2nd Division;
- Signal Battalion No. 15, České Budějovice, (formed on the basis of a part of II/2 Signal Battalion, Benešov) – subordinate to the Command of the 1st Division;
- Signal Battalion No. 16, Benešov (formed on the basis of a part of II/2 Signal Battalion, Benešov) – subordinate to the Command of the 5th Division;
- Signal Battalion No. 11, Rokycany– subordinate to the Command of the 1st Division;
- Military Signal Academy, Nové Mesto nad Váhom – subordinate to the Signal School;



Military parade ZIS-110b automobile equipped with transmitter

Armoury No. 22, Hradec Králové was transferred from subordination of the 5th Division of the Department II of MOND to the Signal Corps Command, GS.

The following units and facilities were disbanded by December 31, 1950:

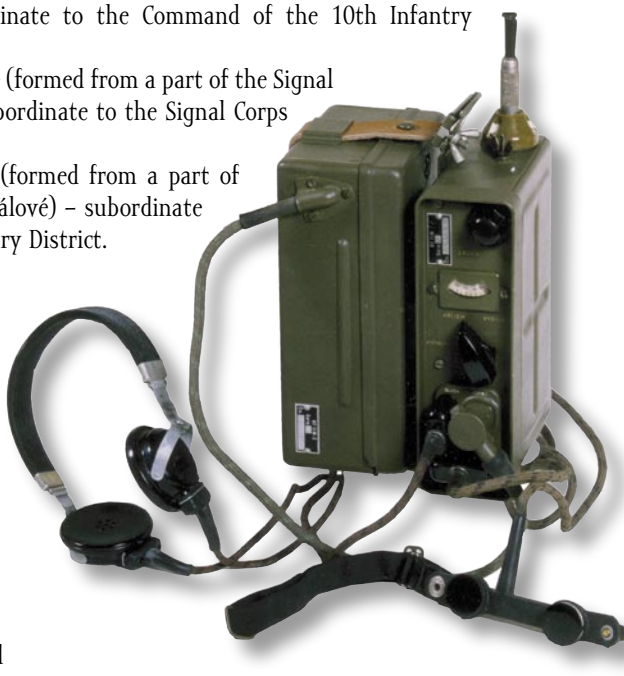
- Signal Regiment No. 3, Brno;
- Signal Regiment No. 46, Benešov;
- Signal Store No. 1, Hradec Králové,
- Signal Store No. 3, Brno.

The following units were established by December 31, 1950:

- 21st Signal Battalion, Banská Bystrica (formed from a part of the Signal Regiment No. 4, Turčianský Sv. Martin) – subordinate to the Command of the Army Corps I;
- 22nd Signal Battalion, Písek (formed from a part of the Signal Battalion No. 2, Sušice) – subordinate to the Command of the Army Corps II;
- 23rd Signal Battalion, Plzeň (formed from a part of the Signal Battalion No. 11, Rokycany) – subordinate to the Command of the Army Corps III;
- 24th Signal Battalion, Brno (formed from a part of the Signal Regiment No. 3, Brno) – subordinate to the Command of the Army Corps IV;
- 3rd Signal Battalion, Mladá (formed from a part of the Signal Regiment No. 1, Turnov) – subordinate to the Command of the 3rd Tank Division;
- 4th Signal Battalion, Hroby u Tábora (formed from a part of the Signal Battalion No. 16, Benešov) – subordinate to the Command of the 4th Tank Division;
- 5th Signal Battalion, Slaný (formed from a part of the Signal Battalion No. 16, Benešov) – subordinate to the Command of the 5th Mechanized Division;
- 8th Signal Battalion, Kolín (formed from a part of the Signal Battalion No. 16, Benešov) – subordinate to the Command of the 8th Mechanized Division;
- 6th Signal Battalion, Brno (formed from a part of the Signal Regiment No. 3, Brno) – subordinate to the Command of the 6th Infantry Division;
- 13th Signal Battalion, Kroměříž (formed from a part of the Signal Battalion No. 3, Brno) – subordinate to the Command of the 13th Infantry Division;
- 14th Signal Battalion, Olomouc (formed from a part of the Signal Battalion No. 3, Brno) – subordinate to the Command of the 14th Infantry Division;
- th Signal Company, Opava (formed from a part of the Signal Regiment No. 4, Turčianský Sv. Martin) – subordinate to the Command of the 7th Infantry Division;
- 9th Signal Company, Trnava (formed from a part of the Signal Regiment No. 4, Turčianský Sv. Martin) – subordinate to the Command of the 9th Infantry Division;
- 10th Signal Company, Košice (formed from a part of the Signal Regiment No. 4, Turčianský Sv. Martin) – subordinate to the Command of the 10th Infantry Division;
- Main Signal Depot, Hradec Králové (formed from a part of the Signal Store No. 1, Hradec Králové) – subordinate to the Signal Corps Command, GS;
- 1st Signal Store, Hradec Králové (formed from a part of the Signal Store No. 1, Hradec Králové) – subordinate to the Command of the 1st Military District.

The following units were reorganized by December 31, 1950:

- Signal Regiment No. 1 of the Hero of Soviet Union Otakar Jaroš changed its name to the 1st Signal Regiment of the Hero of Soviet Union Otakar Jaroš and moved from Turnov to Prague
- Signal Regiment No. 4 of Slovak National Rising changed its name to the 4th Signal Regiment of Slovak National Rising and moved from Turčianský Sv. Martin to Trenčín;



RF-11 radio station

RM-31 radio station

- Signal Regiment No. 5, Pardubice, changed its name to the 5th Signal Regiment, Pardubice;
- Armoury No. 22, Hradec Králové, changed its name to the 5th Armoury, Pardubice;
- Signal Store No. 4, Nové Mesto nad Váhom, changed its name to the 4th Signal Store;
- Signal Battalion No. 2, Sušice, changed its name to the 2nd Signal Battalion;
- Signal Battalion No. 11, Rokycany, changed its name to the 11th Signal Battalion and moved to Plzeň;

The following unites were renumbered by December 31, 1950:

- Signal Battalion No. 13, Dvory by Karlovy Vary, changed it number to the 12th Signal Battalion;
- Signal Battalion No. 15, České Budějovice, changed it number to the 1st Signal Battalion;

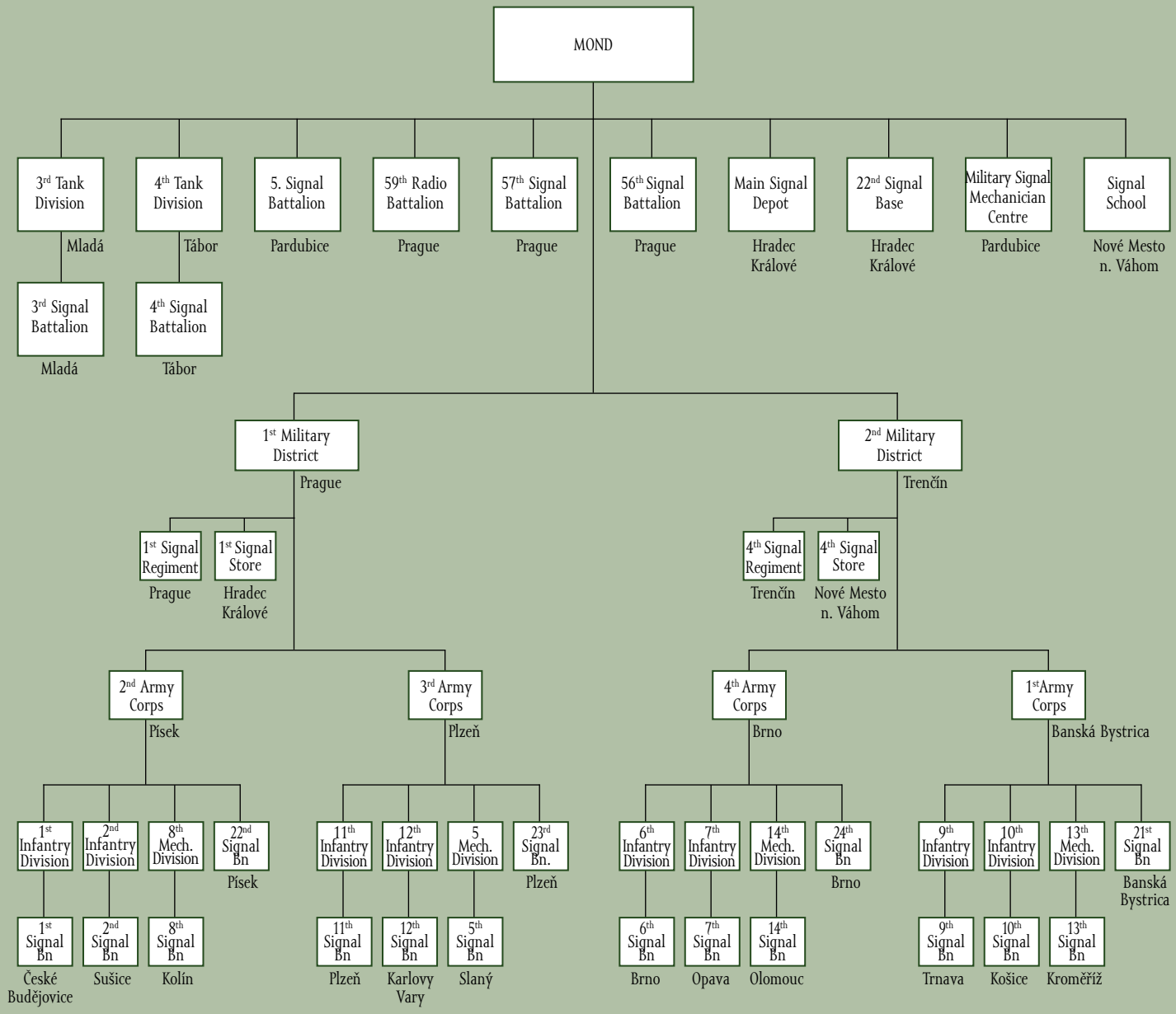
The following unit was established by April 1, 1951:

- 56th Signal Company, Prague, (formed on the basis of existing Signal Department of the Regional Military Command, Prague) and subordinated to the Signal Corps Command, GS.

The following units were reorganized by April 1, 1950:

- Signal Company of MOND, Prague, was reorganised to the 57th Signal Battalion, Prague;
- Battalion of Military Meteorological Stations, Prague, was reorganised to the 59th Radio Battalion, Prague.

Organisational chart - May 1, 1951



Badge of Military Academy Graduate

In September 1952, the 2nd Military District organized the largest exercise of Czechoslovak Army, code-name "952", participated by nearly 30,000 soldiers. The exercise should prove the preparedness of the Army for a war conflict. Generally, it exceeded expectations but serious deficiencies were discovered in artillery, field engineer units as well as in signal units,

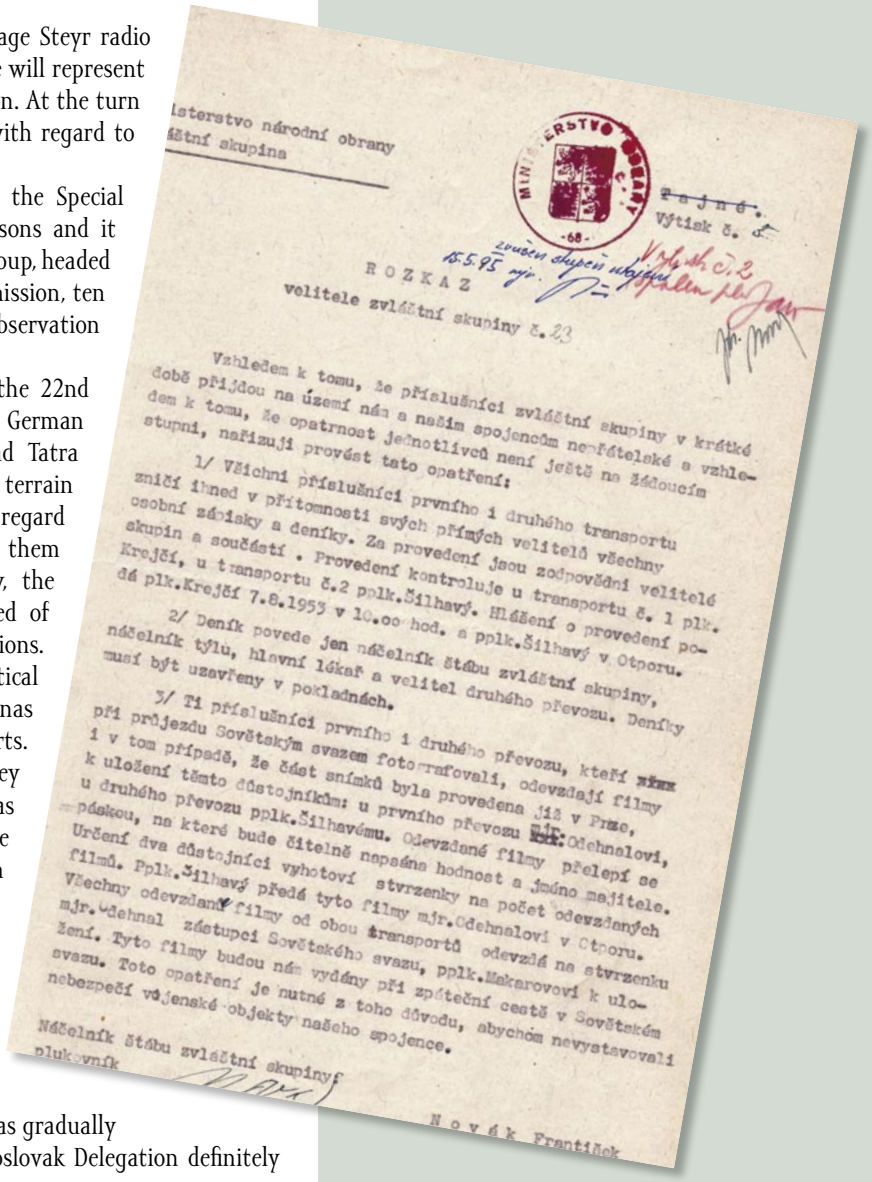
One of very little known chapters of the history of Czechoslovak Signal Corps, the preparation of so called Special Group of Czechoslovak Army for Operation on the Armistice Line in Korea was also organised in the same period. In July 1951, the armistice negotiations were opened and it seemed that the Korean War, lasting already more than one year, is coming to an end. In this connection, in spring 1952, they started the North Korean-Chinese-Czechoslovak negotiations with an objective to prepare a Czechoslovak contingent for the Neutral Nations Supervisory Commission (NNSC) which would supervise the observation of armistice. Beside the Czechoslovakia, the NNSC consisted of Poland, Sweden and Switzerland. The Special Group of Czechoslovak Army, formed in the course o April and May 1952, consisted of 380 persons in total. Wireless operators, who represented an important part of the group, were concentrated in the 1st Signal

Tatra 128 radio vans were equipped with 80 W.S.a radio stations

Regiment at Prague-Ruzyne. It was planned that the salvage Steyr radio vans furnished with German radio stations of 80 W.S.a type will represent their main equipment but they proved insufficient very soon. At the turn of June and July 1952, the Special Group was disbanded with regard to the collapse of armistice negotiations in Panmunjom.

On April 1, 1953, after resumption of the negotiations, the Special Group was reactivated again in the strength of 384 persons and it immediately started with the formation and training. The Group, headed by Lt. General František Rubeš, consisted of the main commission, ten operational observation sub-commissions and ten logistic observation sub-commissions.

29 pieces of Tatra 128 radio vans which were made in the 22nd Communication Armoury in Hradec Králové by installing German trophy radio station of 80 W.S.a type into the off-road Tatra box vehicle disposing of very good passability of heavy terrain represented very important part of the equipment. With regard to the insufficient power of the 80W stations, four of them were replaced by stronger 200W radio stations. Finally, the communication equipment of the Special Group consisted of 4 sets of 15W, 22 sets of 80W and 4 sets of 200W radio stations. Training of the signal men aimed its attention at the practical use of 200W stations, namely at the installation of antennas and, first of all, at the encryption of messages and reports. The Code Division of the General Staff prepared special key to be used in Korea. On July 1, 1953, the Special Group was reorganized and reduced to 300 persons. With regard to the approaching signing of the armistice which happened on July 27, 1953, the Group left Prague by railway transport on July 22, 1953 already. On August 12, 1953, it arrived at the Capital City of DPRK, Pchyonyang, and since September 6, all the Czechoslovak inspection groups started their activity within Neutral Nations Supervisory Commission (NNSC). Their primary mission was to check the motion of military material and persons in the ports and airports. Since December 1953, the strength of the group was gradually decreasing. At the beginning of the year 1993, the Czechoslovak Delegation definitely ended its operation within NNNC in Korea.



isterstvo národní obrany
áštní skupina

Výtisk č.

ROZKAZ
velitele zvláštní skupiny č.23

Vzhledem k tomu, že příslušníci zvláštní skupiny v krátké
době přijdou na území nás a našim spojencům nepřátelské a vzhle-
dem k tomu, že opatrnost jednotlivců není ještě na žádoucím
stupni, nařizuji provést tato opatření:

1/ Všichni příslušníci prvního i druhého transportu
zničí ihned v přítomnosti svých přímých velitelů všechny
osobní zápisky a deníky. Za provedení jsou zodpovědní velitelé
skupin a součástí . Provedení kontroluje u transportu č. 1 plk.
Krejčí, u transportu č.2 pplk.Šilhavý. Hlášení o provedení po-
dá plk.Krejčí 7.8.1953 v 10.00 hod. a pplk.Šilhavý v Otporu.

2/ Deník povede jen náčelník štábu zvláštní skupiny,
náčelník týlu, hlavní lékař a velitel druhého převozu. Deníky
musí být uzavřeny v pokladnách.

3/ Ti příslušníci prvního i druhého převozu, kteří
při průjezdu Sovětským svazem fotografovali, odevzdají filmy
i v tom případě, že část snímků byla provedena již v Praze,
k uložení těmto důstojníkům: u prvního převozu
u druhého převozu pplk.Šilhavému. Odevzdané filmy přelepí se
páskou, na které bude čitelně napsána hodnost a jméno majitele.
Určení dva důstojníci vyhotoví stvrzenky na počet odevzdaných
filmů. Pplk.Šilhavý předá tyto filmy mjr.Odehnalovi v Otporu.
Všechny odevzdané filmy od obou transportů odevzdá na stvrzenku
mjr.Odehnal zástupci Sovětského svazu, pplk.Makarovovi k ulo-
žení. Tyto filmy budou nám vydány při zpáteční cestě v Sovětském
svazu. Toto opatření je nutné z toho důvodu, abychom nevystavovali
nebezpečí vojenské objekty našeho spojence.

Náčelník štábu zvláštní skupiny
plukovník

Novák František

Honorary badge of Model Signalman introduced in 1951

In the meantime, further phase of reorganisation of the Army continued in Czechoslovakia and it affected the Signal Corps as well.

The following subordinate units of the Signal Corps Command, GS, were reorganised by November 1, 1953:

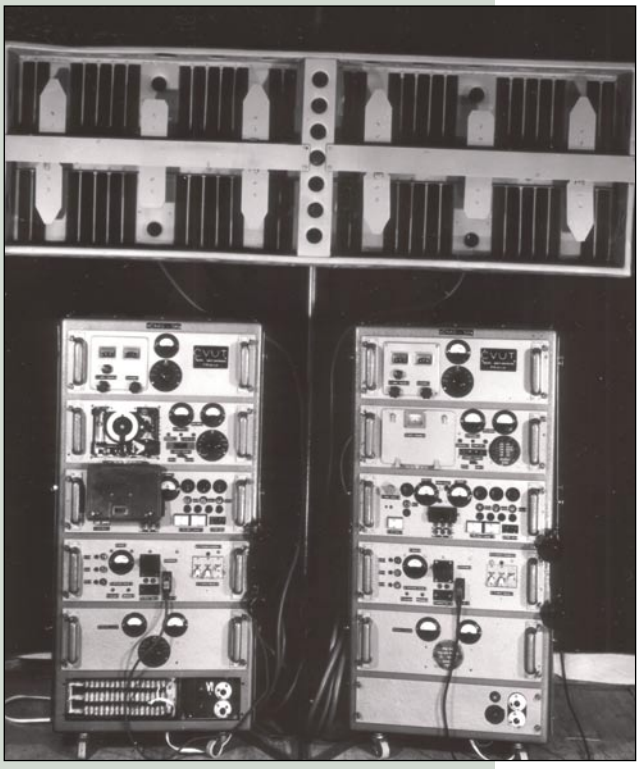
- 57th Signal Battalion, Prague, was reorganised to the General Staff Communication Centre, Prague;
- 56th Signal Company, Prague – to the 2nd Signal Base Prague;
- 22nd Signal Armoury, Hradec Králové – to the 1st Signal Base, Hradec Králové;

The following units and facilities were established after disbanding of the Military Technical Institute on the basis of its Electro-Technical Department by January 1, 1954:

- Testing Signal Base, Prague-Kbely – subordinated to Signal Corps Command, GS, and the following units and facilities were reorganized:
- Main Signal Depot, Hradec Králové – to Central Signal Depot, Hradec Králové;
- 1st Signal Store, Hradec Králové – to 1st District Signal Store, Hradec Králové;
- 4th Signal Store, Nové Mesto nad Váhom – to 4th District Signal Store, Nové Mesto nad Váhom;
- Signal Mechanic's Military Training Centre, Pardubice, to Signal Mechanic's School, Pardubice.

In July 1954, on the basis of decision of the Main Political Directorate, the Czechoslovak Army was given new official name – Czechoslovak People's Army (CSPA). It should be a symbol of changes made after February 1948. The Army became an armed force of socialist type being entirely under the influence of CPC, the members of which occupied all the decisive positions.

On May 14, 1955, a Treaty on Friendship, Cooperation and Mutual Assistance was signed in Warsaw. It was foundation of the Warsaw Treaty, the military-political organisation of the People's Republic of Albania, People's Republic of Bulgaria, People's Republic of Czechoslovakia, People's Republic of Hungary, German Democratic Republic, People's Republic of Poland, People's Republic of Romania and Union of Soviet Socialist Republics. Marshall of the Soviet Union I. S. Koněv was appointed Commander-in Chief of the Joint Command. Czechoslovak Government approved the Treaty on May 17 already and the whole process of ratification was accomplished on June 3, 1955. The Allied bonds and the way of control and orientation of development and activity of the troops did not change after signing the Treaty.



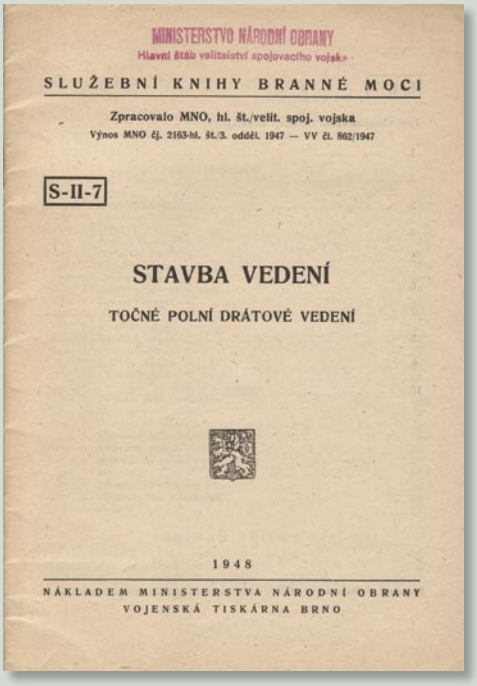
DMG 7 K "Michael" - German radio-relay station belonged to the trophy equipment

On May 26 and 27, 1955, the Army Board of the Ministry of National Defence had an enlarged session aimed at the situation in combat preparedness and combat readiness of Czechoslovak Army and at the requirements resulting from the formation of the Joint Command of the Joint Armed Forces. Chief of the General Staff Colonel General Václav Kratochvíl delivered the Report concerning actual situation in Czechoslovak armed forces. In case of individual army branches, he stated a number of improvements and, at the same time, he also mentioned many deficiencies. Situation in the Signal Corps was characterised as follows: *"Signal Corps is not able to ensure the continuous command by all the means of communication at high rate of combat, namely by radio, because it doesn't dispose of the stations with necessary range and mobility. There is a lack of practice in strong jamming of radio operation and at night"*. He criticized e.g. the situation in the communication of national air defence which didn't secure reliable command to all the means. It was due to the shortage and variety of the communication material, large part of which was still of trophy origin. In the sphere of preparation of national territory for defence, high importance was put on securing awareness and preparedness of the citizens by means of the developed network of wire broadcasting. It was expected that all the private radio receivers will be taken away. According to the plan, they should provide complete radiofication i.e. installation of wire broadcasting to each village till the year 1963. The report included also the way of jamming of the enemy military radio operation. It was stated that no case like that was recorded till now. On the

contrary, the report says that the jamming of military network by friendly defence broadcasting organized by Ministry of Interior against enemy political broadcast (R-405 action) cannot be precluded. In the sphere of material and technical provision of the Signal Corps it says: *"The need of communication material in radio equipment is covered by 80% of Czechoslovak and unauthorized trophy models. In the next years, our Army will fully transfer to licence production of Soviet radio material so that the unification will be fully secured. Negotiations concerning this issue are just taking place"*.

Only several organisational changes were made in the Signal Corps in the year 1955. The following units changed their number and name by May 9, 1955:

- 1st Signal Regiment of the Hero of Soviet Union Captain Otakar Jaroš changed to 1st Signal Regiment of Ružomberok of the Hero of Soviet Union Captain Otakar Jaroš;
- 2nd Signal Battalion, Sušice – to 4th Signal Battalion of Zvolen;
- 3rd Signal Battalion, Mladá – to 13th Signal Battalion;
- 4th Signal Battalion, Tábor – to 9th Signal Battalion;
- 5th Signal Battalion, Slaný – to 2nd Signal Battalion of Dukla;
- 13th Signal Battalion, Kroměříž – to 3rd Carpathian Signal Battalion;
- 9th Signal Company, Trnava – to 5th Fatran Signal Company.


MINISTERSTVO NÁRODNÍ OBRANY
Hlavní štáb velitelství spojovacího vojska
SLUŽEBNÍ KNIHY BRANNÉ MOCI
Zpracovalo MNO, hl. št./velit. spoj. vojska
Výnos MNO čj. 2163-hl. št./3. odděl. 1947 — VV čl. 862/1947
S-II-7
STAVBA VEDENÍ
TOČNÉ POLNÍ DRÁTOVÉ VEDENÍ
1948
NÁKLADEM MINISTERSTVA NÁRODNÍ OBRANY
VOJENSKÁ TISKÁRNA BRNO

On June 1, 1955, 60th Radio Battalion, Unhošť-Čeperka, was established and subordinated to the Signal Corps Command, GS, and the 59th Radio Battalion was reorganized to 59th Battalion of Direction Finding Stations and relocated from Prague to Zbiroh.

System of training of the Signal Corps career soldiers represented special chapter in the history of Signal Corps. In the first post-war decade, it passed through a number of essential changes which reflected the changing condition in units, growth of qualification demands on the execution of individual functions, changes in the communication organisation as well as the perspectives of development of the communication equipment. Basic military education required for achieving officer's rank was considered as an entrance study. Since the year 1945, this study was organized in the Signal School and had different duration. Till the year 1953, it lasted only two years because of the urgent need of young officers in the years of intensive development of the Army. Growth of requirements upon the knowledge and skills of the Signal Corps officers necessitated a prolongation of the study up to three years in the year 1953. Graduates from the Signal School were trained for the posts of platoon leaders,
company commanders or lower technical positions. Since the year 1950, non-commissioned officers (NCO) of the Signal Corps were recruited from the conscripts who passed through a one-year long Signal Mechanic's School and remained in further active service, or from civilian applicants who graduated from two-year long Military Technical School in the rank of Staff Sergeant. This training was aimed at concrete positions and concrete equipment. On August 15, 1951, based on the Order of the President of the Republic, they established Military Technical Academy in Brno. Its primary mission was to prepare officers for the positions in the headquarters of higher units and for the posts of regiment and battalion commanders. Faculty of Communication consisted of four chairs: Line Communication Technologies, Military Radio Stations, Radio Technologies and Radio Detection and Ranging. On September 23, 1953, Lt. General Miroslav Šmoldas, former commander of the Corps Signal School of the 1st Czechoslovak Army Corps in the U.S.S.R., became the Chief of Military Technical Academy. In February 1954, the school was renamed to Antonín Zápotocký Military Technical Academy.

Air Force and the Corps of Anti-Aircraft Defence of the State Territory had their own signal units. The first independent signal formations were formed within the Air Force at higher commands in the years 1945–1947. The first Signal Wing No. 4 was established within the 4th Air Force Division in summer 1945. In spring 1946, it was reorganized to Signal Squadron No. 4. In September and October 1947 they formed Signal Squadrons No. 1 and 3 subordinated to newly established Air Force Corps I

FuG 17 – German trophy aviation radio station

FuG X – Germane trophy aviation radio station – called LR-10

and III. Command of Air Force Corps IV took over the Signal Squadron No. 4 and the Command of Air Force Corps II had no Signal Squadron in its structure. In October 1948, the Signal Squadrons of the disbanded Commands of Air Force Corps were transferred to the Commands of Air Force Districts. In April 1949, the Signal Squadrons No. 1 and 4 were reorganised to Signal Regiments No. 1 and 3, subordinate to Air Force Command. In July 1949, the Signal Squadron No. 3 was renumbered to Signal Squadron No. 2 and it was also transferred to the subordination of Air Force Command. The Air Force Signal Regiment No. 3 ceased to exist in November 1950 and was included into the structure of Signal Regiment No. 1 as its 4th Battalion. Signal Squadron No. 2 ceased to exist in March 1951.

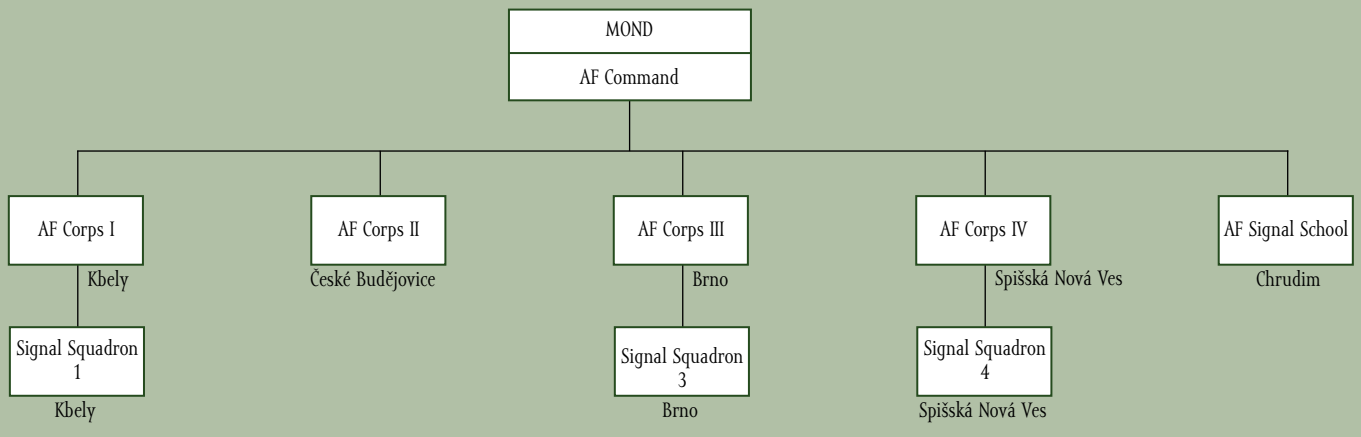
Signal Centre of Air Force Command started its operation in January 1951. The Air Force signal companies which achieved the status of independent formations in January 1953 were formed within the commands of individual divisions since the summer of the year 1951 already. In November 1951, Command of the 15th Fighter Corps was allocated a signal battalion, reorganised to company in January 1953, which was disbanded together with the abolishment of the Corps in March 1955. The 1st Air Force Signal Regiment continued acting in subordination of the Air Force Command. In September 1952, 4th Battalion of the mentioned regiment was rebuilt to School of Junior Signal Specialists of the Air Force (disbanded in August 1954).

Responsibility for training of signal specialists of the Air Force was in the hands of Air Force Signal School No. 1 established in August 1945 and Air Force Signal School No. 2, the beginnings of which go back to the period of liberation battles when it was a part of the 1st Czechoslovak Combined Air Force Division in the U.S.S.R. The schools provided training of ground and flight radiotelegraph specialists, radio mechanics and operators of radar stations and goniometers. The Air Force Signal School No. 2 was disbanded in July 1946 and the Air Force Signal School No. 1 ceased using number 1 in its name.

The Air Force Signal School was reorganised to Interceptor's and Signal Specialist's School. The school ceased its activity in August 1954 and the training was transferred to the Signal School. Communication Workshops of Air Force Logistics were established in June 1952 to be used for the repair of Communication equipment. In November 1954, they were renamed to Air Force Communications Workshops.

Communication equipment of the Air Force represented a big problem. Mutual communication between ground equipment consisting mostly of German trophy equipment and the Soviet and British made aircraft radio stations did not achieve the required reliability. On the basis of Czechoslovak-Soviet intergovernmental agreement, signed in November 1951, Czechoslovakia purchased the equipment for the Air Force, namely for MiG-15 aircraft. AN-TPS-3 and SCR-527 radio stations became a part of the delivery.

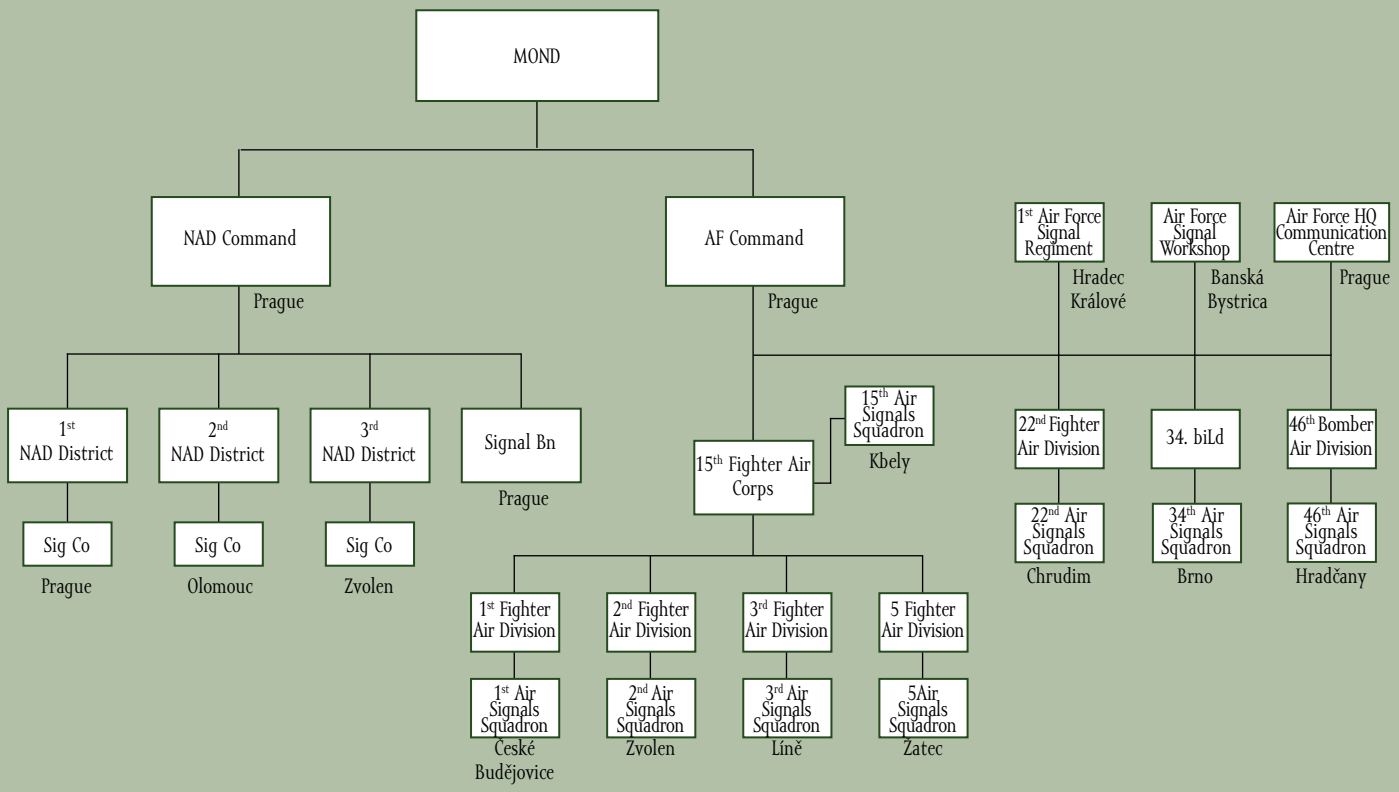
Organisational scheme – Air force Signal Formations as of October 1, 1947.



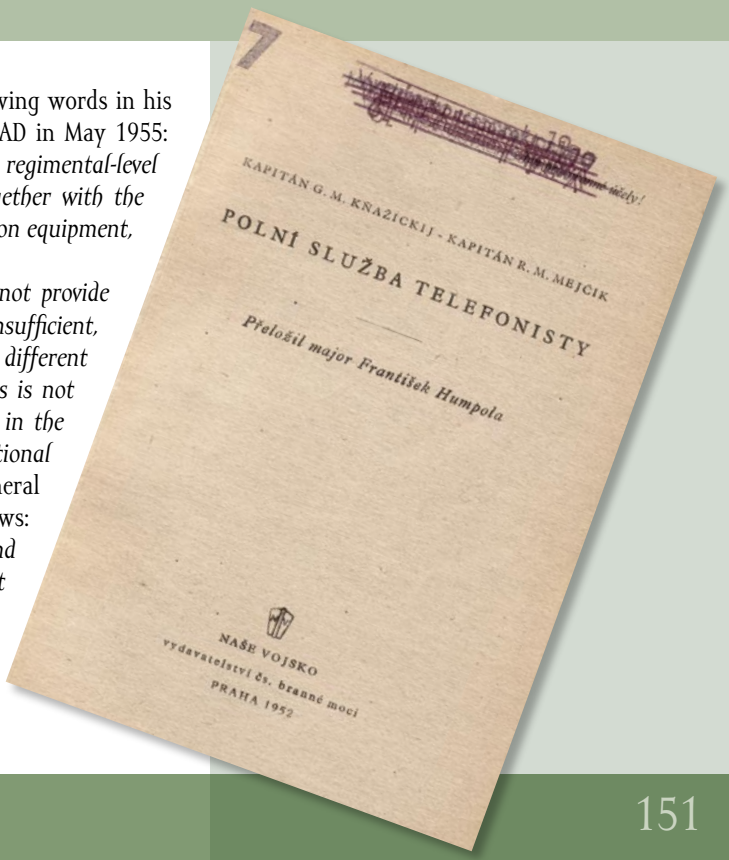
Signal units of the newly formed Anti-Aircraft Defence of the State Territory were established at the beginning of the fiftieth. In December 1952, the Signal Company of the State Territory Anti-Aircraft Defence Headquarters was enlarged to Signal Battalion. Since November 1, 1945, the State Territory Anti-Aircraft Defence was given new name – National Air Defence (NAD). The district signal companies ceased to exist gradually, together with the disbanding of superior commands. In March 1955, it was the 3rd District and in June 1957 – the 1st and 2nd District.

Badge of board radio-telegraph operator introduced in 1947

Organisational chart – Signal formations of the Air Force and NAD as of November 1, 1954



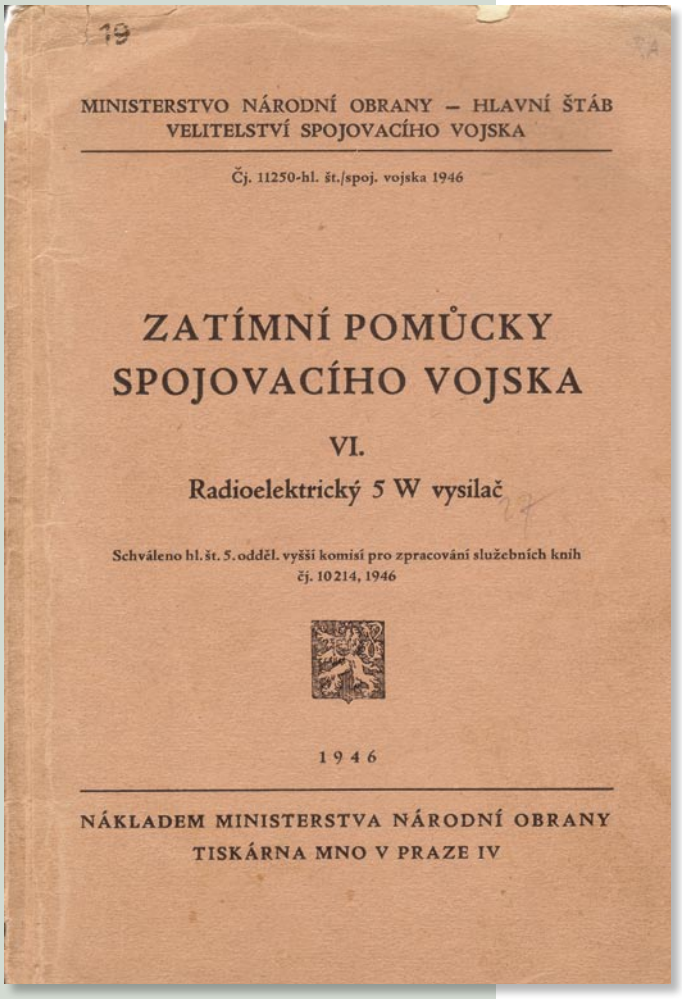
Chief of the General Staff Lt. General Václav Kratochvíl said the following words in his already cited report concerning the situation in the Air Force and NAD in May 1955: *"Combat staffing of the command posts of the fighter division-level and regimental-level formations do not work accurately and purposefully enough and, together with the deficiencies in the commander's resolution and shortage of communication equipment, they do not guarantee a continuous command in heavy conditions ...*
Actual situation in the Communication of National Air Defence does not provide reliable command of all the means. Existing equipment by radio means is insufficient, prescribed number of material is not fully refunded, the material is of different type and mostly of trophy origin. Prescribed number of radio operators is not sufficient to provide communication. In order to secure the command in the conditions of radio jamming, the NAD units must be equipped with directional communication equipment ..." In the conclusion of the report, Lt. General V. Kratochvíl outlined the future development of the CSPA as follows: *"Comrades, the deficiencies I have pointed out in my report are serious and they are decreasing the combat capability of our Army from the viewpoint of the use of mass destruction weapons. However, we are able and, it is our sacred duty to remedy these deficiencies in a shortest possible time and to come closer to our model – the glorious Red Army even in the new conditions of combat and operation. ..."*



COMMUNICATION EQUIPMENT IN THE FIRST POST-WAR YEARS 1945–1955

In 1945, Czechoslovak Army disposed of variety of armament and equipment. The most significant part of communication equipment of the newly developed Army consisted in the trophy material, i.e. the material left on the Territory of Czechoslovakia by collapsing German Army, or the material acquired from the proceeding electro-technical production introduced in the period of the Protectorate. The units coming back to the liberated motherland from the west and from the east were bringing other communication equipment of British, Soviet as well as American provenience.

In the first post-war years, the communication material was replenished namely by the continuing wartime production of home industry and by the acquisition of the communication means of Soviet, British and American origin, which increased the type variety even more. In May 1949, Czechoslovakia obtained manufacturing licence for Soviet equipment, beside other things, for the production of A7a radio station. The effort to unify our armament with that of the Red Army, anchored in the Košice Government Programme, was quite illusory for the Signal Corps at the turn of the fortieth and fiftieth. In 1949, the Land Forces inventory registered 5,800 pieces of various types of radio apparatus. Only 10% of them were Soviet or Anglo-American systems. Czechoslovak Army took over about 80 types of German communication equipment for all command levels. The trophy equipment was adapted for the use of Czechoslovak signal units by repainting the panels and by riveting on the Czech identification plates. Soviet, British and American designs were represented only by about tenth of the types. The extensive variety of types was accompanied by permanent problems in training as well as in logistic provision of spare parts and components. The problematic ability of coordination between the units equipped by radio apparatus of quite various proveniences represented the largest limitation.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MINISTERSTVO NÁRODNÍ OBRANY – HLAVNÍ ŠTÁB
VELITELSTVÍ SPOJOVACÍHO VOJSKA

Čj. 11250-hl. št./spoj. vojska 1946

ZATÍMNÍ POMŮCKY
SPOJOVACÍHO VOJSKA

VI.

Radioelektrický 5 W vysilač

Schváleno hl. št. 5. odděl. vyšší komisí pro zpracování služebních knih
čj. 10214, 1946

1946

NÁKLADEM MINISTERSTVA NÁRODNÍ OBRANY
TISKÁRNA MNO V PRAZE IV

Manual for German trophy communication equipment

Technical basis for development of the post-war Signal Corps of Czechoslovak Army was given by the armaments production of former Protectorate. After May 1945, the German design school, making use of up-to-date technology introduced to the Protectorate radio-technical factories by the occupants, together with the pre-Munich production tradition, started a vigorous development of national communication means. At the beginning, it was the activation of trophy equipment which was the main task of the newly established Military Technical Institute which included the sphere of military electronics in its Department II. The first designs appeared in the former Military Telegraph Workshops, Kbely, (in the Protectorate – Ostmark Werke) as early as the year 1946. They were responsible for development of military communication equipment within Military Technical Institute. The designers who participated in wartime production, being under the influence of German design school, developed a new generation of Czechoslovak communication equipment. They gradually developed RF-11, RO-21 and RM-31 radio stations. In case of RF-11 prototype, marked as RC-473, the Kbely designers were inspired by German Kl.Fu.Spr.d. It included a six-valve double detection receiver (superheat), similar to American Handie-Talkie (BC-611). Series version of RF-11M enabled communication with the tank U.H.V. extension in a form of RM-31-50 radio station. Miroslav Petr, M.Sc. (Tech.) was at the birth of RF-11. The RF-11

Mw.E.c - German trophy radio receiver

Prototype of SW radio station

Kl.Fu.Spr.d. "Dorette" – German radio station

radio station was used at the development of Orlík waterworks where it served for communication with crane operator at concreting. Later on, it was delivered to civilian sector using commercial name – Orlík.

The critical situation with armament and equipment should be solved by so called minor armaments programme, the first stage of which started in the year 1948. However, in the course of the year 1948, the so called minor and major armaments programmes were modified. A long-lasted use of German trophy material was not planned any more and the units should be equipped with Soviet armament namely. An exception was allowed in case of the material which could be produced by Czechoslovak armaments industry itself. At the beginning of the fiftieth, there were 17 types of stations on different level of development and preparation for series production. Step by step, the Czechoslovak armaments industry began to deliver up-to-date communication equipment of home convenience to the Army.

On May 16, 1951, Army Board of the Ministry of National Defence discussed the Report concerning material situation of Czechoslovak Army armament and equipment submitted by Deputy Minister for material matters. It included the Report on Material Condition of Communication Means which was divided into Part A – Line Material and B – Radio Material. The stocks in the sphere of the link material consisted of 15,370 pieces of telephone apparatus of different types, 558 Lorenz-Siemens teleprinters, 212 Hell teleprinters and more than 23 thousand kilometre of telephone cable. This material, its absolute majority being of trophy origin, was sufficient to equip 90 to 100% of the Czechoslovak Army units according to wartime table of organization and equipment. Situation in the sphere of radio

Prototype of RC-473 – Czechoslovak radio station

British Teleprinter Creed, used in the first post-war years

Civilian version of RF-11

Praga A-150 radio van

RM-31-P infantry radio station

RM-31-T tank radio station

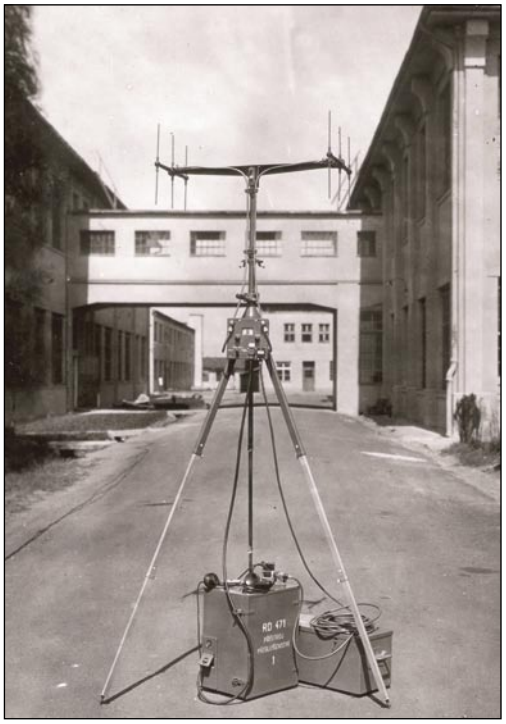
material was quite different. Army disposed of 8 major radio stations (three types) for armies and fronts, 348 medium radio stations (three types) for army corps and divisions, 1459 minor radio stations (fourteen types) for regiments and 476 battalion radio stations (two types). All the radio stations were directly in units and thus, there were practically no reserves in the stores. Expected service life of the medium and major radio stations was within 5 – 15 years; in case of minor and battalion radio stations, regarding the fact that they were worn down by being used in the years of war, it was only 2 years. If the amount of the medium radio stations was sufficient for 100% of the units with war strength and the amount of minor radio stations- for 70%, the major radio stations - 40% only and the battalion station covered mere 18% of units. Licence manufacturing of the battalion radio stations of Soviet A7b (RO-22) type was already going on in TESLA Pardubice factory but it was slowed down by the shortage of components that had to be imported from the U.S.S.R. In addition to that, Signal Corps disposed of 250 radio vans of different types.

In the same year, based on the conclusions of the February session of Central Committee of Communist Party of Czechoslovakia, concerning continuing deficiencies in material-technical and logistic provision of the Army, a Plan of Maximum Armament Production in the years 1951–1953, called Armaments Three-Year-Plan was approved. Its implementation resulted in a rapid growth of the percentage of military production of the total capacity of mechanical engineering which achieved as much as 27% in 1953. Development of new communication equipment was concentrated into two places which secured the production of prototypes and preparation of the production for TESLA, Elektrosignal and Radiospoj companies at the same time. It was namely the already mentioned Prague workplace in Kbely and the 22nd Communication Armoury in Hradec Králove which was reorganised to 1st Communication Base. Hradec Králové by November 1, 1953, and represented the largest technical base of Signal Corps.

Universally used, minor, combined-arms, short-wave RM-31 radio station became a representative of the effort to equip the Army with modern communication means of domestic design. However, the modern drafted, mechanically and ergonomically well designed radio station possessing 10W power had one considerable defect. American miniature octal battery valves used at its construction suffered from insufficient mechanical resistance and they were a source of frequent failures. The Armoury of Hradec Králové was committed to the production of test series and preparation of series production. History of the company started in the period of the Protectorate in Anton Novotný´s laboratory which produced small orders for German Army. In the first post-war years, the factory installed the German trophy radio stations of 15 W.S.E.b type into Praga A-150 vehicles. On January 1, 1949 ND became owner of the factory and using the name of Armoury 22, Hradec Králové, it began to enlarge its production capacity.

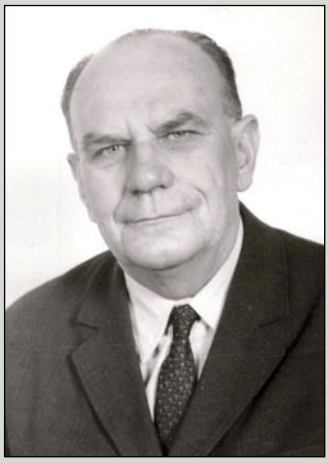
RD-513-2 "Meteor" direction finding receiver

Hand-operated generator for RM-31 radio station



Prototype of RD-471 radio-relay station in Kbely in the year 1949

Transmitter from the set of "Meteor" stored in aerial delivery containers



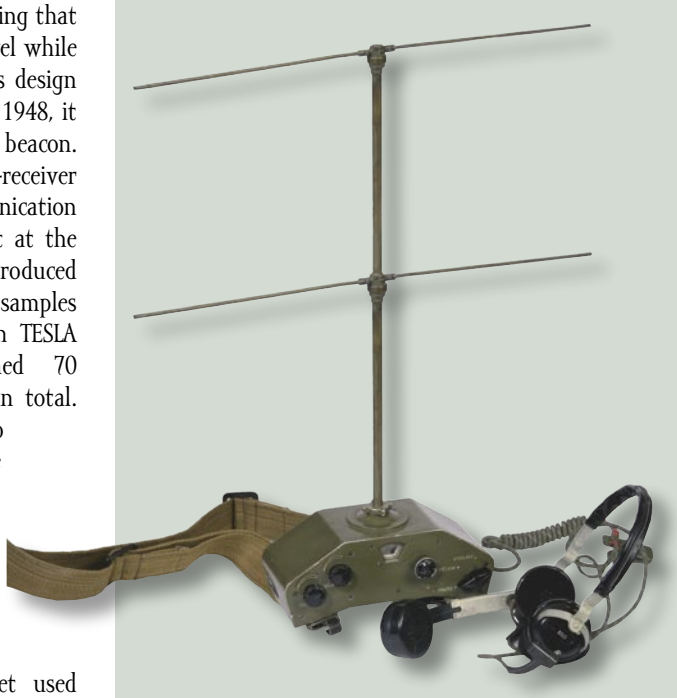
Designer Josef Ženíšek

The first prototype of future radio-relay station of designer Ženíšek

In December 1950, it was renamed to Communication Armoury No. 22 and in November 1953 reorganised to the 1st Signal Base Hradec Králové. Series production of RM-31 was started at the beginning of the fiftieth in TESLA Pardubice factory. It included four versions: infantry - RM-31-P, automobile – RM-31-A, tank – RM-31-T with a complement RM-31-50 for communication inside a tank company and RM-31-S type – for the communication of the tank and self-propelled units.

Designer Josef Ženíšek substantially participated in the development of the Czechoslovak communication equipment. Being inspired by German and Anglo-American UHV communication means, he designed many pieces of apparatus for the Czechoslovak Signal Corps in Prague-Kbely. In 1947, he constructed "Helmet", a simplex device for communication of the reconnaissance unit up to the range of 1.5 km. Soldier's helmet was used as an antenna system. He succeeded to construct two functioning samples but series production was not started. The reason was the refusal of Army command objecting that this apparatus would solve only the communication on the lowest command level while the communication at higher commands would remain unsolved. Later on, this design was used by Americans. In 1948, it was "Pařez" (RD-511) radio beacon. It was a transmitter-receiver which served for communication and pathfinding of aircraft at the distance of 100 km. They produced 5 pieces of functioning samples in Kbely. Its production in TESLA Pardubice factory reached 70 pieces till the year 1954 in total. The set was introduced to the armament of airborne troops. In the same period, they constructed "Pálka" (RD-512) radio beacon possessing of a coding system and ability to keep an air drop secret together with "Meteor" set used in searching for material air drop.

RDM-61 "Ženíšek" radio-relay station



RD-511 "Pařez" radio beacon

Škoda 973 radio van equipped with RM-31 radio station

Workers of Military Research Institute produced 40 search receivers and 120 transmitters in total. The device was patented and the production documents handed over to Polish Army. Next apparatus was the legendary small radio relay (directional) "Ženíšek" station which was introduced into armament of Signal Corps as RDM-61. At first, they produced 10 prototypes marked RD-471 in Kbely. In the middle of the fiftieth, it was introduced into armament of Czechoslovak Army and replaced the trophy DMG 2T "Elster"; altogether, they produced about 100 stations. In 1952, it was 22nd Communication Armoury, Hradec Králove and in 1956, Elektrosignal Prague which participated in its production. Later on, the "Ženíšek" radio relay station was upgraded to RDM-61M type.

In the fiftieth, the Communication Armoury, Hradec Králové, began to specialize itself in the installation of communication equipment into automobiles. In this way, at the beginning, Tatra 805 chassis were used for high box bodies furnished with the trophy German DMG 7 K "Michael" radio relay stations or Torn.E.b. short-wave receivers and 80 W.S.a transmitters or Mw.E.c. receivers and W.S.a. transmitters . The radio vans were known under code-names "Čtvrtek" *(Thursday)* and "Pátek" *(Friday)*. In 1955, the newly reorganised 1st Signal Base, Hradec Králové, accomplished the tests of small radio van using the chassis of Škoda 973 off-road vehicle and equipped with RM-31 station in the units. Prototypes of the Škoda 973 vehicle were made in three versions. Beside the communication version, they made a staff version and amphibious version. In spite of their indisputable qualities which the still existing vehicles prove till now, they were not

Mobile command post – "Sobota"

The "Sobota" command post was equipped with RM-31, RM-31-50, RO-22 (A7b) and R-3 radio stations

included in the armament of Czechoslovak Army. Their position was occupied by Soviet GAZ-69 type. In 1955, the Hradec Králové Base ordered production of a lowered box for Tatra 805 off-road vehicle from ČSAO Dvůr Králové (former Hartman Company). The same year, using these boxes, they produced several tenths of radio vans with code-name of "Sobota" *(Saturday)* which were designed by Svoboda, M.Sc. (Tech.). These vehicles were designed as mobile command posts used for direct command of troops in combat and on move and they were equipped with RM-31 radio stations.

In 1955, the Hradec Králové Base installed two American SCR-399 radio stations into Praga V3S box-type trucks. The radio stations were a part of armament of the 1st Czechoslovak Army Corps in the U.S.S.R. and they were installed in American Studebaker US6 trucks before. The stations were included in the armament of 9th and 13th Tank Division.

In the years 1951–1954, Czechoslovak Army was gradually refitted and thus, it became fully combat capable, contemporaneous, conventional armed force. In the course of the fiftieth, modern radio stations of domestic design school were coming to the units and replacing the stations of the trophy origin. Beside the mentioned RM-31 station, it was namely the portable short-wave RI-21"Libeň" radio station which was introduced in 1955. Development of R-3 "Maraton" receivers, made in Military Technical Institute and R-4 station, made in TESLA Pardubice factory, fall into the first half of the fiftieth as well. In the sphere of line equipment, they developed TP-25 field telephone apparatus produced by TESLA Valašské Meziříčí. However, nuclear weapons became the main tool of warfare that time and Czechoslovak Army was not prepared for it. Beside the organisational changes, this fact required new rearmament. In December 1954, they concluded an agreement between Soviet and Czechoslovak General Staff concerning rapid rearmament of Czechoslovak Army in the years 1955-1959. This agreement already anticipated establishment of Warsaw Treaty. Origin of the Warsaw Treaty in the year 1955 meant the end of majority of the national projects and designs in the sphere of military radio technology. Military armament, including communication equipment was subordinated to unification.

RO-21 "Libeň" radio station

Prototype of R-3 (RP-521) radio receiver

R-3 radio receiver

TP-25 telephone apparatus

Radio receiver of originally German tank Fu 5 series renamed to Czechoslovak RM-32-P type

SIGNAL CORPS AFTER ORIGIN OF WARSAW TREATY – THE YEARS 1955–1968

Combat training at a nuclear conflict

In May 1955, the origin of Warsaw Treaty opened a new chapter of development of the Czechoslovak People's Army (CSPA). At the same time, the CSPA began revealing itself to be insufficiently prepared for waging modern war, which expected a transition from the use of conventional to nuclear weapons.

Organisation, training and technological equipment of troops had to adapt to new conditions in which the future war conflicts could be effected. Upgrading and further increase of combat efficiency of CSPA were gradually hampered by the limits of Czechoslovak economy. In April 1956, Minister of National Defence Alexej Čepička was recalled and his position was taken over by General Bohumír Lomský. In the second half of the fifties, a number of the officers, expected to become support pillars of the commander corps of the Army after February 1948, left the armed forces. In this way, it was already the third team of commanders which took over the command positions in the course of the after-war years. Arrival of the new command of the Army was accompanied by the arrival of the first graduates of military academies who gradually replaced the officers who had the only qualification – allegiance to Communist Party of Czechoslovakia (CPC) - after February 1948 and were not able to satisfy the growing requirements upon mastering the modern military equipment.

In 1955, the percentage of graduates of military academies was only 3% of the commander corps, but in 1960, their number increased up to 13.2%. On the other hand, the number of the officers without any military school education dropped from 9.5 to 1.2%. However, there were still 50% of officers without ´A ´Levels in secondary education in total.

The above mentioned changes affected the Signal Corps as well. In 1957, the post of Chief of Signal Corps of the Ministry of National Defence of the Czechoslovak Republic was occupied by Colonel Stanislav Odstrčil, former commander of Brigade Signal Battalion of the 1st Czechoslovak Detached Brigade in the U.S.S.R.

One of the changes aimed at making the control and command system simpler was the cancelling of the Corps level, which was the beginning of wide reorganisation of the land troops. Further to the cancelling of the Corps (1st, 2nd and 3rd), their subordinate Signal Battalions (21st, 22nd, 23rd and 24th) were also disbanded as of October 1, 1956. The only one preserved command of the 4th Rifle Corps was reinforced by the 2nd Signal

Maj. General Stanislav Odstrčil (*1909-†1974)

Member of the 1st Czechoslovak Army Corps in the U.S.S.R. In 1943, Stanislav Odstrčil graduated from Infantry Officers´ School in the U.S.S.R. He served as Signal Platoon Leader, Signal Company Commander and Signal Battalion Commander of the 1st Czechoslovak Independent Brigade in the U.S.S.R. In 1947, he graduated from an academic course at Military Academy in Hranice. After the year 1945, he served in the position of Signal Officer of the 3rd Division, Commander of the 2nd Signal Regiment and Signal Officer of the 1st Military District. Since April 1957 till July 1968, he was Chief of Signal Corps, MOD.

Regiment, Brno, which was formed from the cancelled 21st and 24th Signal Battalions. Simultaneously, they enlarged the cadre-type divisional signal companies up to signal battalion level:

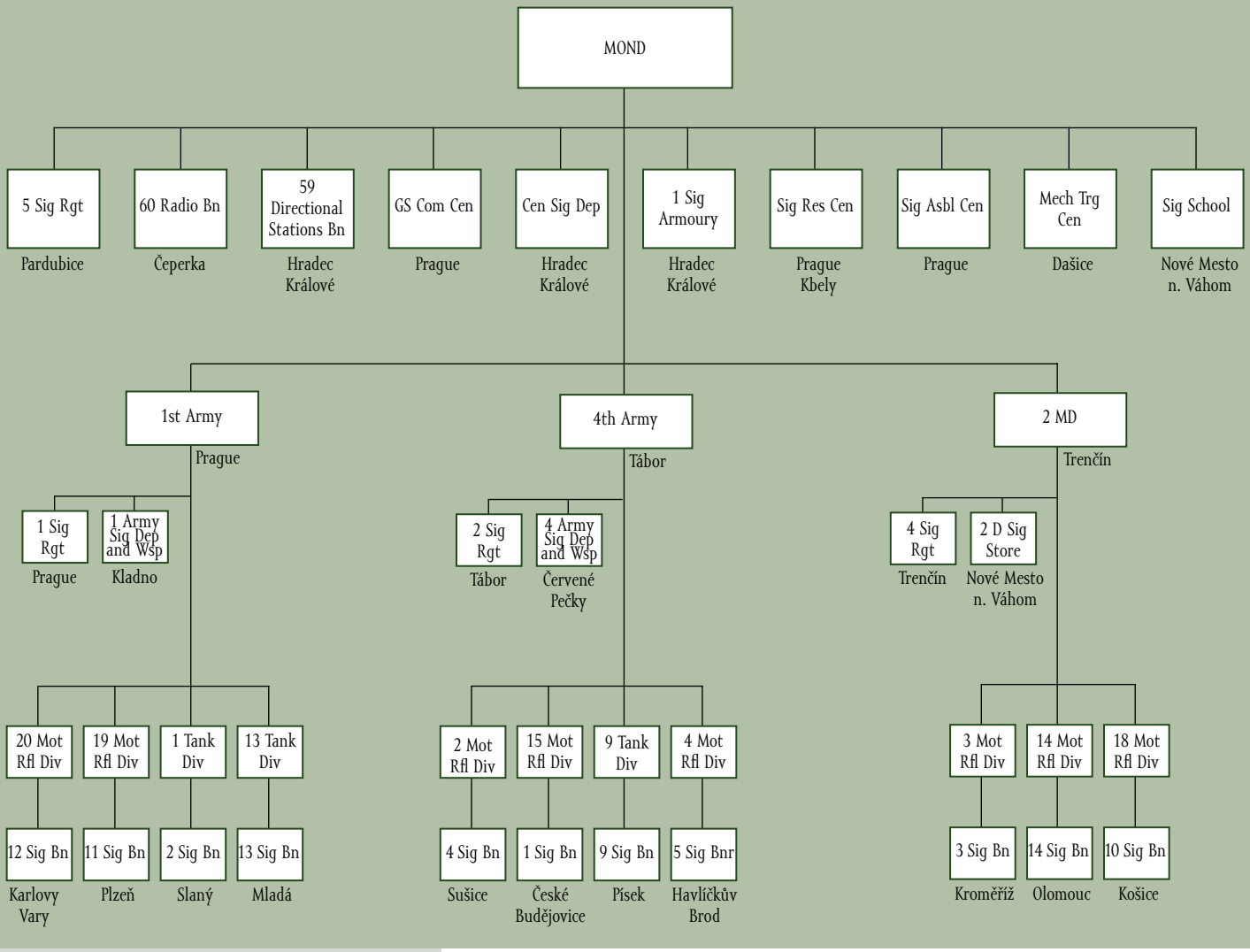
- 7th Signal Company, Opava, to 7th Signal Battalion, Opava
- 5th Fatra Signal Company, Trnava, to 5th Fatra Signal Battalion, Trnava
- 10th Signal Company, Košice, to 10th Signal Battalion, Košice.

One month later, on November 1, 1956, the research and development components of the Signal Corps Command were put together and formed Research Signal Centre, Prague-Kbely, directly subordinate the Signal Corps Command. At the same time, Signal Test Base, Prague-Kbely, was cancelled and included into the Research Signal Centre. As of October 1, 1957, the 2nd Signal Regiment was moved from Brno to Olomouc and 59th Directional Radio-station Battalion from Zbiroh to Hradec Králové.

Next radical reorganisation of CSPA was executed in 1958. Existing arrangement was replaced by the new one, which was better corresponding with the manoeuvre character of the modern war operations. The reorganisation corresponded with the changes going on in Soviet Army. On August 15, 1958, the 1st Military District Command was disbanded and replaced by the Command of the 1st Army formed on its basis. Simultaneously, the last of the existing Corps Commands (4th) was transformed into the Command of the 4th Army. The reorganised Army consisted of 180,000 military assigned into 22 divisions (15 divisions of Land Forces, 6 divisions of Air Force and 1 division of National Air Defence) and a number of detached brigades and regiments. The Signal Regiments (1st and 2nd) of the two higher commands remained preserved and performed the tasks in favour of their successors. The 2nd Signal Regiment was moved from Olomouc to Tábor. Significant changes affected the signal depots. On October 1, 1958, the existing 1st Region Signal Depot was reorganised to the 1st Army Signal Depot and Shops, moved from Hradec Králové to Kladno and subordinated to the Command of the 1st Army. The 4th Army Signal Depot and Shops, Červené Pečky was newly established and subordinated to the Command of the 4th Army. The 4th Region Signal Depot, Nové Mesto nad Váhom, was renumbered to the 2nd Region Signal Depot. The 2nd Signal Base, Prague, was reorganised to Signal Assembling Technical Centre, Prague, subordinated to the Signal Corps Command. With regard to the disbanding of some divisions, the 7th Signal Battalion in Opava, 8th Signal Battalion in Kolín and the 5th Fatra Signal Battalion in Trnava were cancelled while the number, honorary name and traditions of the last one were taken over by the existing 6th Signal Battalion which moved from Brno to Havlíčkův Brod but remained in subordination of the 4th Motorized Rifle Division. Relocation of the 9th Signal Battalion from Tábor to Písek was the last organisational change.

Training with A 7b radio station at training area in Benešov in 1956

Organisation chart of Signal Corps as of October 1, 1958



VÝZKUMNÝ ELEKTRONICKÝ ÚSTAV
060

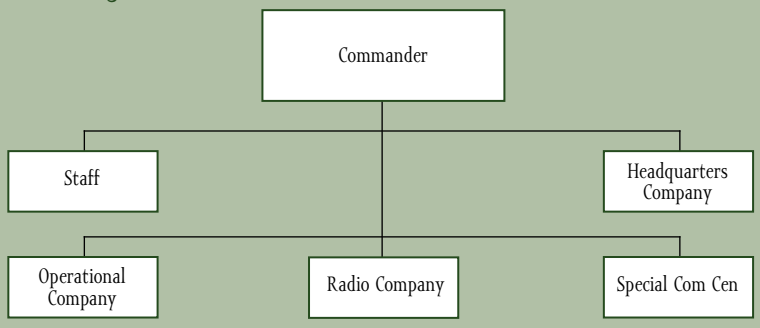
Team of designers of radio-relay stations in the Research Institute No. 060 (Josef Ženíšek – the first from the left)

Reorganisation of research components of the Signal Troops took place at the beginning of 1959. On January 1, 1959, the Signal Test Base, Prague-Kbely, was detached from the existing Signal Research Centre, Prague-Kbely, which was transformed into Research Electronic Institute, Prague-Bučovice, subordinated to Deputy Chief of the General Staff (Technical Support) of the Czechoslovak People's Army. In October 1960, the institute was changed to Research Institute No. 060. Before that, in April 1959, the Signal Test Base was moved to Prague-Jinonice.

In July 1959, 1st Ružomberok Signal Regiment of the Hero of Soviet Union Captain Otakar Jaroš moved firstly from Prague to Kralovice and then, on October 1, 1960, to Beroun. At the same time, 10th Signal Battalion moved from Košice to Prešov and, first of all, the Communication Centre of the General Staff, Signal Assembly Technical Centre, Prague-Butovice, Communication Centre of Prague Garrison and Communication Chiefs of Gran of Prague, Brno, Plzeň and Bratislava were incorporated in one body, the newly established Communication Network Administration, Prague, subordinate to the Command of Signal Corps.

In connection with the prescribed duty to create Command of the Front from some part of the General Staff of CSPA, the Army started reorganisation of a number of the Signal Corps units on September 1, 1961. First of all, it was 52nd Line Construction Battalion, Dašice by Pardubice, which was established and put into subordination of Signal Corps Command and the 60th Radio Battalion, Unhošť-Čeperka was reorganised into 60th Signal Battalion. Moreover, they established a Directional Network Operation Centre, Prague-Ruzyně subordinated to Signal Corps Command. The Signal Test Base Prague-Jinonice was changed to Testing Base No. 063. The 59th Directional Radio station Battalion moved from Hradec Králové to Prague-Ruzyně.

Organisation chart of the 60th Signal Battalion

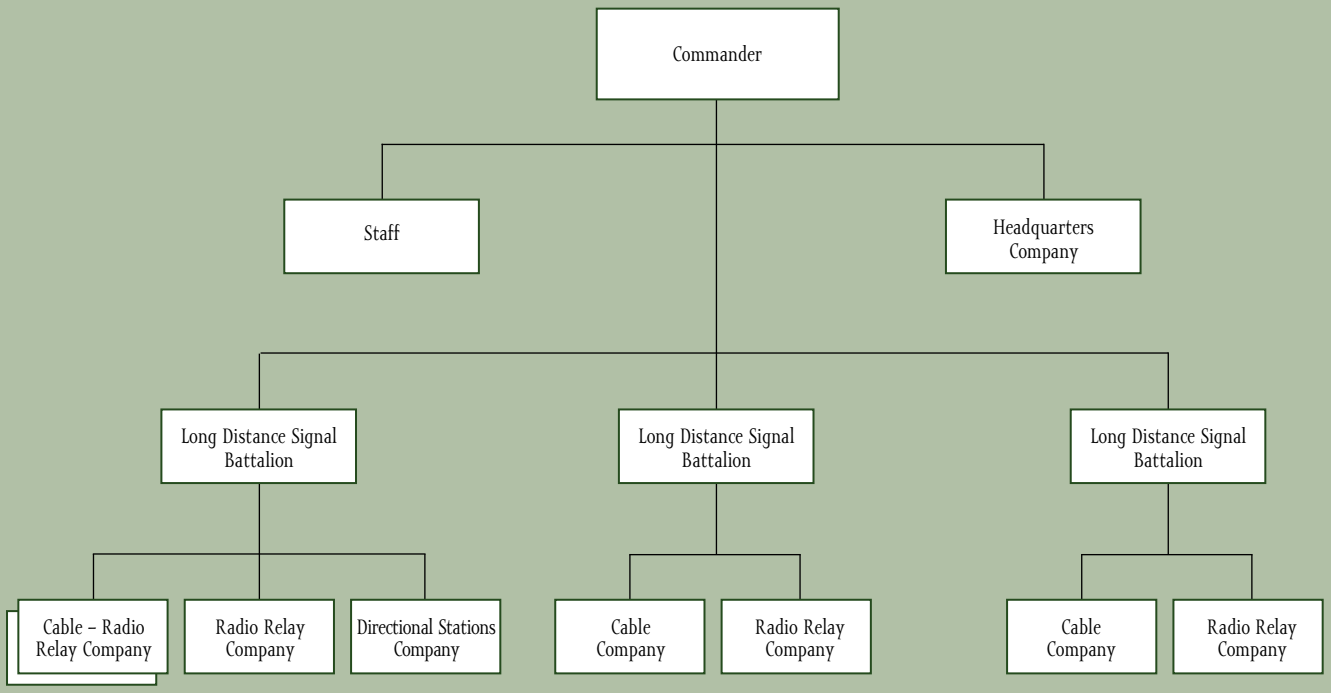


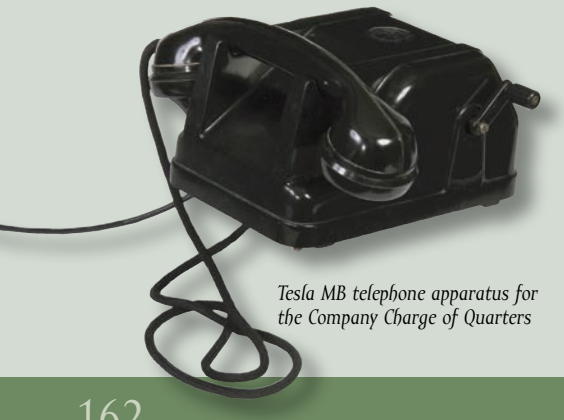
Hungarian RO-25 radio station substituted the A 7b stations for a short time

In May 1962, the 1st Army Signal Depot and Workshops were moved from Kladno to Červený Újezd-Hájek. Other organisational changes occurred as of September 1, 1962. The 1st Signal Base, Hradec Králové, was reorganised to Repair Workshop No. 064 and the Repair Workshop 065, Prague, was newly established and subordinated to the Deputy Minister of National Defence for Air Defence and Air Force. It moved to Český Těšín very soon. The 52nd Line Construction Battalion, Dašice by Pardubice, grew up to become 52nd Cable – Radio Relay Regiment and 59th Directional Station Battalion Prague-Ruzyně to become 52nd Long Distance Signal Communications Regiment. Signal Mechanician School moved from Pardubice to Poprad.

T-51 (RFT) teleprinter made in GDR

Organisation chart of the 52nd Cable - Radio Relay Regiment





Tesla MB telephone apparatus for the Company Charge of Quarters

As of September 1, 1963, the Central Signal Depot, Hradec Králové was transferred to 1st Central Signal Depot and the 2nd Central Signal Depot was newly established in Olomouc-Bystrovany and subordinated to Signal Corps Command. At the same time, the General Staff Communication Centre, Prague, Operational Centre of Directional Network Prague-Ruzyně and Communication Network Administration, Prague, were incorporated in one body called Communication Operation Centre, Prague, subordinated to Signal Corps Command. The Signal Mechanician School, Poprad, and Air Force Ground Specialists School, Žamberk, were incorporated in one body called Signal Specialist School, Poprad.

Till the year 1960, the defensive character of CSPA in the first phase of potential armed conflict remained preserved. However, since that year, the planning was aimed at offensive combat activity from the first moments of the outbreak of war. It was connected with the introduction of missiles into armament of the CSPA in the first half of the sixties; it applied for Land Forces, Air Force and National Air Defence. Development of CSPA, its directions, extent and tempo were dictated from the outside by a form of so called Protocol on Further Development of the CSPA that time. De facto, it was an order of Supreme Commander of Joint Armed Forces of Warsaw Treaty member-states. In the sixties, these protocols were signed in 1963 (for the period till the year 1966) and in 1967 (with obligatory tasks till the year 1970). The Command worked on an assumption that Czechoslovakia represents politically and economically most stabilized country among the other member-states of Warsaw Treaty. It resulted in the tasks oriented towards creation of substantially higher amount of technically highly demanding combat arms as in the case of other member-states of the Treaty. Among other things, it required yearly production of 3,500T-54A tanks and 300 pieces of MiG-21 aircraft, which differed from the capacities of the Czechoslovak industry. Conception of waging the war, approved by the Conference of Representatives of Warsaw Treaty Member-States in Moscow in 1963 expected *"Opening of the war in Europe by the imperialist aggressors with maximum surprise and immediate use of all kinds and types of mass destruction weapons"*.

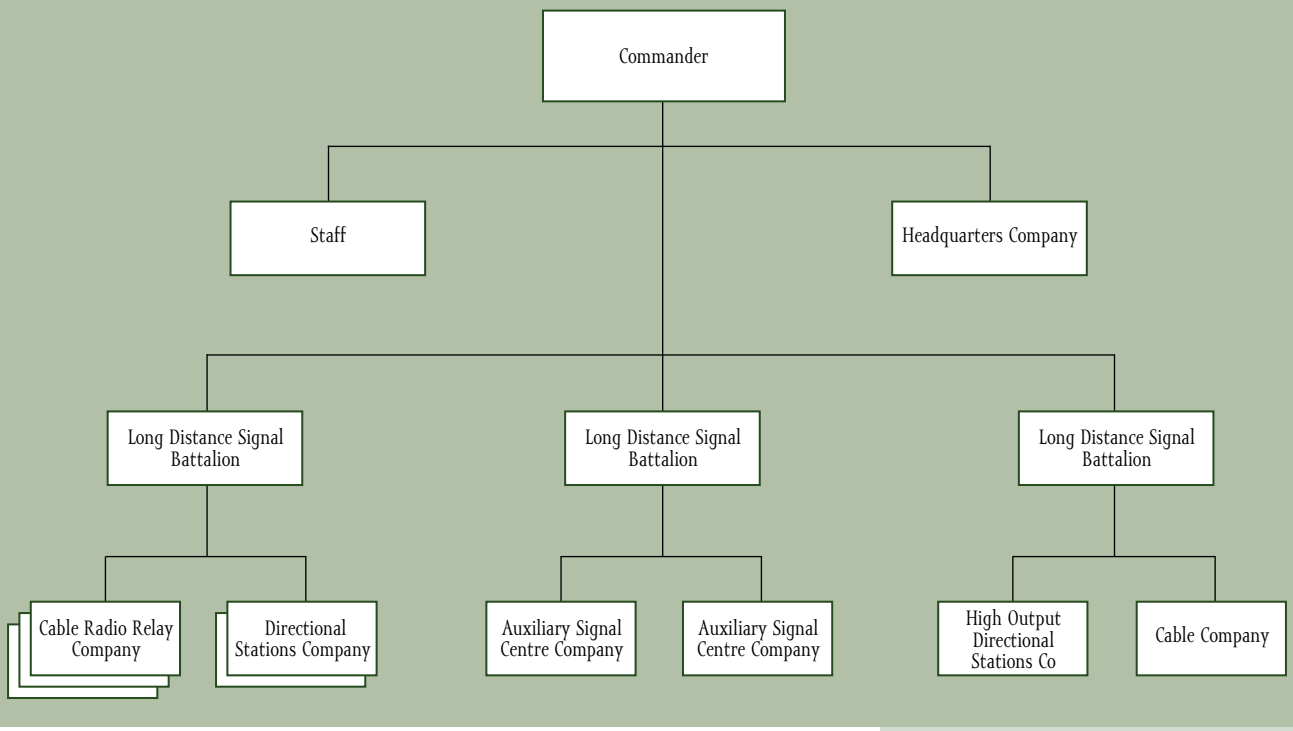
In October 1964, the General Staff of CSPA elaborated "Plan of Use of the Czechoslovak People's Army in Case of War". The plan anticipated an intention of NATO troops to use surprise nuclear attacks in order to disorganize the establishment of the state and

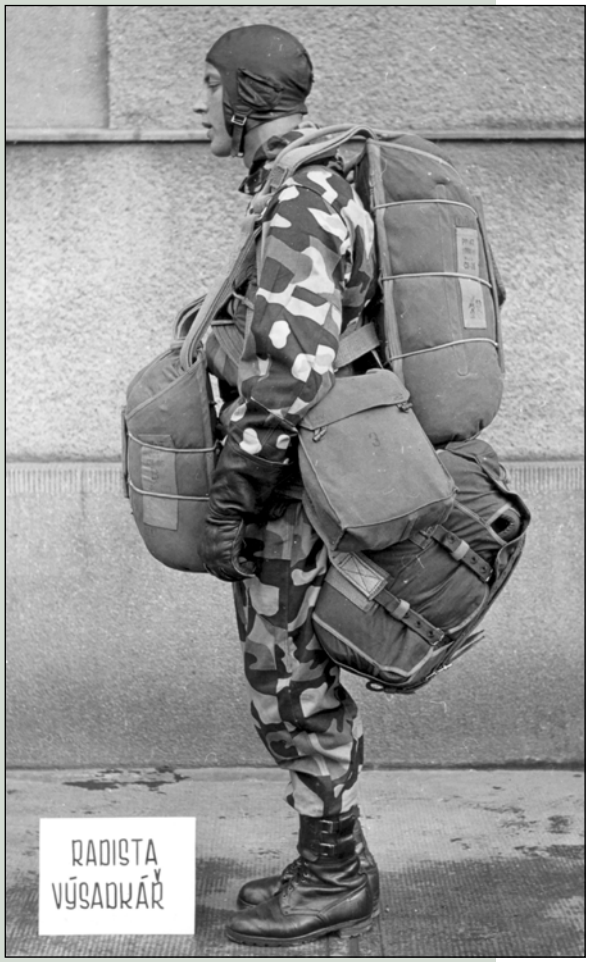
to make deployment of CSPA impossible. Higher CSPA formations and the formations maintained in permanent combat readiness were to leave their permanent garrisons up to 30 minutes after raising the alarm and to take up predetermined areas of deployment within 3 hours. CSPA should develop Czechoslovak Front with the following tasks: *"Immediately after nuclear attack, be ready to stage an attack in the direction Nurnberg, Stuttgart and, a part of the forces, towards München. Mount a nuclear attack against enemy troops in the depth up to the line: Würzburg, Erlangen, Regensburg, Landshut ... Then, develop the attack in the direction towards Strasbourg, Epinal, Dijon and accomplish the destruction of the enemy on the territory of FRG, cross Rhine river and gain the line: Langres, Besancon up to the 7th or 8th day of the operation. Then, develop the attack towards Lyon.*

Organisational changes within Signal Corps continued even in that period. On May 1, 1964, the 4th Signal Regiment of Slovak National Rising, Trenčín, subordinated to the command of the 2nd Military District was disbanded and newly formed 42nd Signal Battalion Trenčín took over its tasks. The reason of the mentioned change was the cancelling of duty of the 2nd Military District, in case of a need, to create Command of the 2nd Army. On September 1, 1964, the following components were established in the subordination of the Signal Corps Command: Military Communication Administration in Prague, Plzeň, České Budějovice, Ústí nad Labem, Hradec Králové, Brno, Ostrava, Bratislava, Banská Bystrica and Košice. At the same time, the 52nd Cable-Radio Relay Regiment was moved from Dašice by Pardubice to Lipník nad Bečvou.

Paratroopers with RF-11 radio station

Organisation chart of the 59th Long Distance Signal Regiment





A paratrooper wearing the battle dress uniform, Model 60 (so called "salamander"), with radio station

Next important reorganisation was implemented in September 1956, the Commands of the 1st and 4th Armies were transformed into Command of Western and Central Military District while the Command of the 2nd Military District was renamed to the Command of Eastern Military District. The 5th Signal Regiment, Pardubice, was transferred from the Signal Corps Commander's subordination to the subordination of Central Military District. All the military districts established communication centres made by incorporating the existing communication centres of the higher commands, garrison communication centres and relevant parts of the disbanded Communication Assembling Centre and Directional Network Operation Centre in one body as follows:

- 1st Communication Centre, Příbram, was subordinated to Western Military District Command, i.e. reorganised Command of the 1st Army;
- 4th Communication Centre, Tábor, was subordinated to Central Military District Command, i.e. reorganised Command of the 4th Army;
- 2nd Communication Centre, Trenčín, was subordinated to Eastern Military Command, i.e. reorganised Command of the 2nd Military District;

As of September 1, 1965, the following changes were realised within the reorganisation:

Reorganised units:

- 1st Central Signal Depot, Hradec Králové was renamed to Central Signal Depot, Hradec Králové;
- 2nd Central Signal Depot, Olomouc-Bystrovany was renamed to a branch of the Central Signal Depot, Hradec Králové;
- 1st Army Signal Depot and Workshops, Červený Újezd was renamed to 1st District Signal Depot, Červený Újezd and Detached Branch, Prague – Ruzyně;
- 4th Army Signal Depot and Workshops, Červené Pečky was renamed to 4th District Signal Depot Červené Pečky and Detached Branch, Hradec Králové;
- Communication Operation Centre, Prague, was subordinated to Signal Troops Command.

Disbanded units:

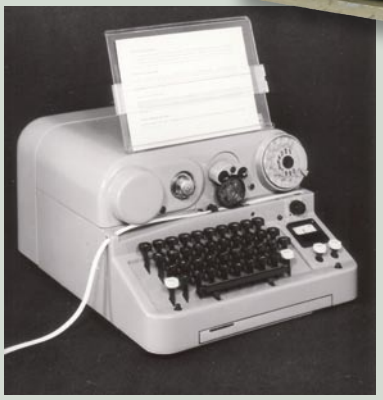
- Communication Assembling Technical Centre, Prague;
- Directional Network Operation Centre, Prague;
- Garrison Communication Centres.

The first prototype of "Dalibor" teleprinter

The same day, the 52nd Cable Radio Relay Regiment detached one Cable Radio Relay Battalion which served as a basis for establishment of 55th Cable Radio Relay Battalion, Nové Město nad Metují, subordinated to Signal Corps Command.

On May 31, 1966, in connection with disbanding of the 14th Tank Division, Olomouc, its subordinate 14th Signal Battalion was also disbanded. Reorganisation of Ministry of National Defence, implemented as of November 1, 1966, resulted in transformation of existing Signal Corps Command of GS CSPA into Signal Corps Department of GS CSPA.

In the middle of the sixtieth, Command of Soviet Army began showing its high interest in deploying its troops on the territory of Czechoslovakia again, which would fill the gap between the groups of Soviet troops based in German Democratic Republic and People's Republic of Hungary. Soviet General Staff put unrealistic requirements on the CSPA Command and as assistance in performing the requirements it offered deployment of Soviet divisions on the Czechoslovak territory. In 1966, they organized



The second prototype of "Dalibor" teleprinter

D-302 "Dalibor" teleprinter produced by Zbrojovka, Brno

the first allied exercise named VLTAVA. The Czechoslovak People's Army participated in the exercise by nearly 80 thousand soldiers, 550 tanks, 1,500 armoured carriers, 630 artillery weapons and 750 pieces of aircraft. After the exercise, Soviet Command stated that the CSPA Forces are not sufficient to perform the task of first-line troops on the Czechoslovak western border and offered the Czechoslovak representatives their "brotherly help" in a form of two Soviet divisions on the territory of the CSSR. Czechoslovak political leadership did not accept this offer.
On September 1, 1967, a new phase of reorganisation was implemented in the Signal Corps. It included detachment of some special units of the Communication and Operation Centre as detached units subordinated to the Signal Corps Department.

Command of air-landed troops during VLTAVA exercise, with Soviet R-105 radio station

Other units passed through reorganisation and were renamed:

- 1st District Signal Depot, Červený Újezd, was renamed to 1st District Signal Depot and Repair Shop;
- 4th District Signal Depot, Červené Pečky, was renamed to 4th District Signal Depot and Repair Shop;
- 2nd District Signal Depot, Nové Mesto nad Váhom, was renamed to 2nd District Signal Depot and Repair Shop;
- Signal Specialist School, Poprad, was renamed to Signal Specialist Training Centre.

Education sphere in the first half of the sixties made a reassessment of the existing level of basic study, which met the requirements of that time but it was not considered sufficient in the future. In connection with the tendencies of technical progress, expected development of signal communication equipment and other requirements put on the officers, they elaborated a concept of university-level basic study necessary for the promotion to officer rank. Establishment of Military Technical Academy, Brno, in 1951 solved the possibility of achieving the university-level education for the officers (graduates from Signal School) with an outlook for asserting themselves in higher positions. The signal specialisation study was divided into two courses: three-year-long course for commanders and five-year-long course for commanders – technicians. Simultaneously, the study was divided according to the kind of equipment into two branches: radio and line communication. However, the difference in individual courses was not observed in posting the people to individual positions. As a result of it, in 1958, they established a unified specialisation. In 1964, the course for commanders was cancelled and they established only one, five-year-long course for commanders – signal communication engineers.

The practise of recruiting the non-commissioned officers of technical specialisations, used in the fifties when the courses were rather narrowly and purposefully aimed at predetermined positions connected with concrete equipment, proved unfavourable in the sixties because of its one-sided orientation. For this reason, they established Military Secondary Technical School of Communication Engineering in 1966. During four years, the graduates achieved complete secondary-school level and secondary-technical-school level education. In harmony with the needs of units, the study was gradually divided to individual signal communication specialisations: radio technician, operating technicians A (listener), operating technician B (chiefs of major radio stations), radio relay communication technician of special communication of the Army (communication by means of secrecy equipment). This division of the specialisations corresponded with the character of the occupied post on which the graduates started to work in the units.
Development applied even to some signal units of the Air Force and National Air Defence. In 1951, the Signal Battalion of National Air Defence Command was disbanded and 2nd Air Force Signal Regiment was established on the basis of the existing Air Force Command Communication Centre and the disbanded battalion. In October 1957,

Field training of Morse alphabet

Semaphore signalling from OT-64 armoured carrier

the Air Force Signal Workshops were reorganised to Air Force Development Centre, later Development and Repair Centre No. 061.

An essential reorganisation of the Air Force and National Air Defence signal units took place in September 1961. It was connected with the sorting of the Air Force according to pre-planned assignment into Frontal Aviation and Fighter Aviation of National Air Defence. The existing 7th National Air Defence and Air Force Army, established in October 1960 on the basis of Air Force and National Air Defence Command, was reorganised to 7th National Air Defence Army in September 1961. The Front Aviation newly formed the 1st Air Force Detached Mixed Corps which was reorganised to 10th Air Force Army in May 1962.

The 2nd Air Force Signal Regiment was reorganised to 17th Signal Regiment and became a part of the 7th National Air Defence Army. The Air Force divisions, which were handed over to National Air Defence structure, served for the formation of National Air Defence Corps and their signal companies were enlarged into signal battalions. The 1st Air Signal Regiment, reorganised to 10th Signal Regiment was subordinated to the Command of the 1st Air Force Detached Mixed Corps (of the

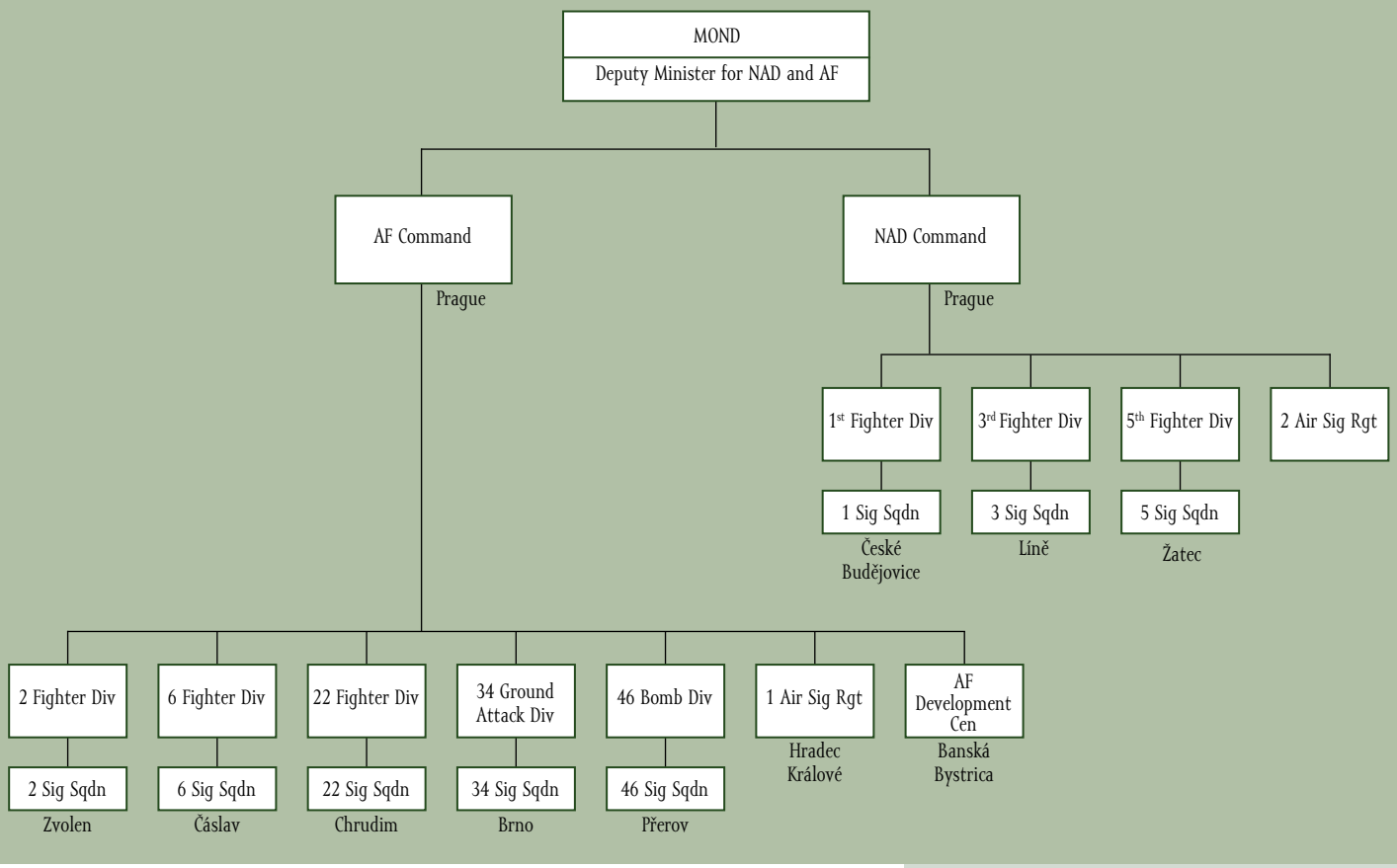
Performance class badge, Class III, of the aircraft wireless operator used in the years 1945 – 1968

R-805 – Soviet aviation radio transmitter used e.g. in Mi-4 helicopters

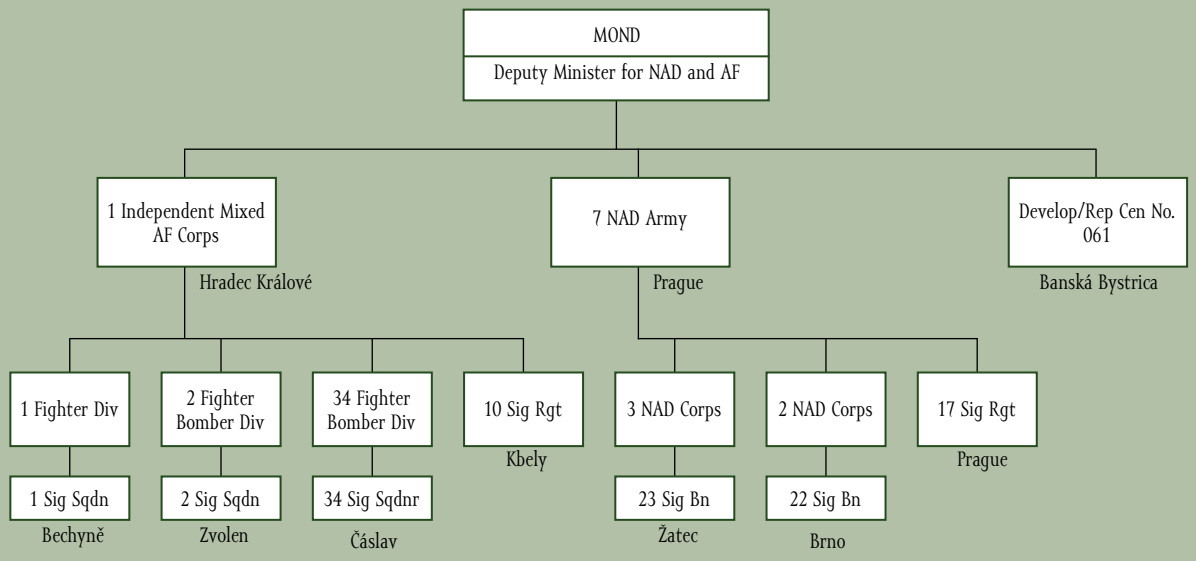
US-9 – Soviet aircraft radio receiver used e.g. in Il-14/Av-14 transport airplanes

10th Air Force Army). In 1963, the signals squadrons of Air Force divisions merged with radio technical companies into so called signal and radio technical support battalions which were subordinated to the relevant divisional command. In 1962, three, so called "S" Signal Companies were formed for the needs of support of the activities of Soviet Air Force units and formations earmarked to move on the territory of Czechoslovakia in case of a military conflict. Their mission was to provide communication for the Command of the 57th Air Force Army, 131st Fighter Division and 289th Bomber Division of the Soviet Air Force till the arrival of their organic supporting units coming from the territory of Sub-Carpathian Military District. In the same year, 7th Army Signal Workshops were established and subordinated to the Command of the 7th National Air Defence Army. In September 1963, 10th Army Signal Workshops were established and subordinated to the 10th Air Force Army. In September 1966, they were renamed to 10th Army Signal and Radio Technical Support Workshops. During September 1967, the two workshops were reorganised to 7th and 10th Army Signal and Radio Technical Support Repair Shops.

Organisation chart – Signal Corps units of the Air Force and NAD as of November 1, 1957



Organisation chart – Signal Corps units of the Air Force and NAD as of September 1, 1961



Lt. General Ladislav Stach (*1926)

In March 1951, Ladislav Stach was commissioned in the rank of lieutenant in accordance with § 39. He graduated from Antonín Zápotocký´s Military Academy in Brno. He served in the position of Signal Battalion Commander, Signal Officer of the 3rd Tank Division and Signal Officer of the 1st Army Command. He graduated from the General Staff Academy in Moscow. Since July 1968 till the end of the year 1988, he was Chief of Signal Corps of the Czechoslovak People's Army GS.

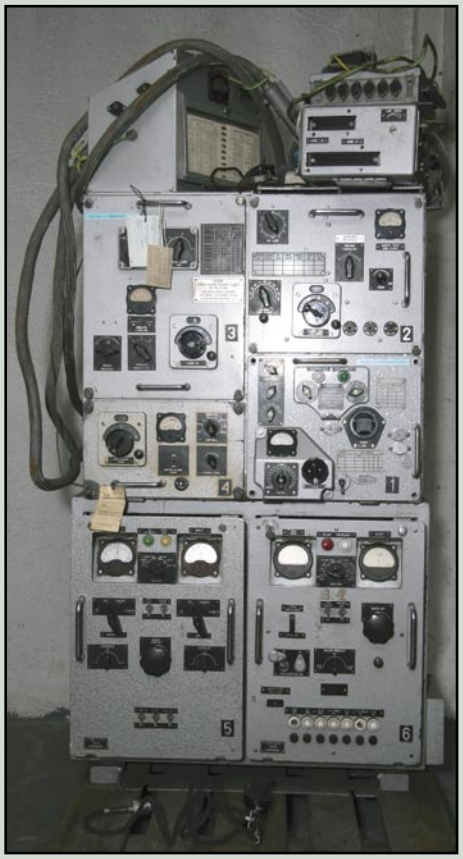
Democratisation and reformatory process inside Communist Party of Czechoslovakia (CPC) heading towards so called "socialism with human face" culminated in 1968, after the January plenary session of the CPC Central Committee. Cancelling of censorship and possibility to express critical remarks concerning all the spheres of the life of society brought important changes also for the CSPA. In April 1968, important changes came up even in the highest command of the Army. Major General Martin Dzúr was appointed to the post of Minister of National Defence and Major General Karel Rusov –- to the post of Chief of the General Staff. The democratisation and reformatory process and radicalisation of Czechoslovak society soon resulted in an animadversion from the side of other socialist countries which developed into the threat of armed intervention. CSPA started gradually engage in the reformatory process. It was connected with the preparation of new Czechoslovak military doctrine, which counted on our continuance in Warsaw Treaty but in a quite independent position of a sovereign state. The CSPA represented the second armed forces after Soviet Army equipped with most modern armament within Warsaw Treaty. Moreover, namely the strategic position of Czechoslovakia in the middle of the expected theatre of war played very important role.

On June 5, 1968, Minister of National Defence Major General Martin Dzúr addressed the members of the Defence and Security Committee of National Assembly. In his assessment of the state of CSPA, he cited the following critical words: *"... technical level of some kinds of armament and combat equipment does not fully correspond with the requirements of the contemporaneous combat (tactical Air Defence, anti-tank means, part of Combat Air Force, classical Artillery, which is on the level of WW II, communication means, etc.)..."*

In July 1968, there was a change on the post of the Chief of Signal Corps of GS CSPA. Colonel Ladislav Stach assumed the post that time. It was the first after-war Chief of Signal Corps who did not participate in national resistance movement during WWII as a signalman. At the same time, in his age of 42, he represented the incoming generation of graduates of Antonín Zápotocký Military Academy.

In June, an exercise of Warsaw Treaty Armies called "ŠUMAVA" was organised so that its major part was executed on the territory of Czechoslovakia. The exercise ended officially on June 30, 1968. However, Soviet troops kept staying in the CSSR and thus they put pressure on the representatives of Czechoslovak reformatory leadership and prepared the ground for military intervention. At night from August 20 to 21, 1968, troops of five member-states of Warsaw Treaty launched the occupation of Czechoslovakia. The intervention called "DUNAJ" operation was participated by about a half million of soldiers. Leading representatives of the reformatory wing were arrested and transported

to Moscow where, under the pressure, they signed so called "Moscow Protocol" which signalled the end of the reforms and the beginning of normalisation.
In the critical days that followed immediately after intervention, there were again signalmen who stood against the occupants using their radio stations and other equipment. The same as their predecessors in the period of threatened national sovereignty, a number of them sat down at their apparatus and started their active resistance. That time, they did not die as in the period of war but for many of them it meant compulsory military discharge and a number of persecutions. According to the report elaborated in 1969, there were about 81 cases of abuse of the communication means of CSPA as a resistance against the intervention and 30 cases of preparations to such abuse. Members of Signal Corps were not only jamming and listening to the transmission of the occupant's radio stations. Their engagement in broadcasting of Czechoslovak Radio was even more important. They partly replaced the studios taken by occupants. Using the names e.g. Svobodné *(Free)* Chodsko, Palcát, Svobodný vysílač Šumava, Svobodný vysílač ČSLA, Východní Slovensko, etc. they established military radio stations, local and regional radio circuits informing the citizens about the passing events. After occupation of the Czechoslovak Radio building in Prague-Vinohrady, they immediately established a replacement broadcasting studio using R-118 radio station in the barracks at Karlín.
The forced stay of Soviet troops which was anchored in one of the articles of the Moscow Protocol played important role in the process of normalisation and further development of CSPA. Deployment of the tens of thousands of Soviet troops in the objects of CSPA resulted in radical reorganisation and relocation of our Armed Forces. On September 28, 1968, Minister of National Defence issued an Order concerning relocation and organisation changes in Czechoslovak Army. However, the first buildings were cleared as early as September 23. The changes referred to nearly 100 formations, headquarters, institutions and logistic facilities with about 29,000 soldiers. Clearing of garrisons for Soviet Army and the transports connected with it have no analogy in the reorganisations of CSPA till now. It was accomplished by October 15, 1968. The reorganisation changes resulted in relocation of the 13th Signal Battalion of the 13th Tank Division from Mladá Boleslav to Topolčany the same day. Signal units of the other formations of the 13th Tank Division were located on the whole territory of CSSR, from Humenné to Stará Boleslav. It is certain paradox that the name of honour of the division was "13th Kiev – Dukla – Ostrava Tank Division of Czechoslovak-Soviet Friendship".
Next day, they signed an Agreement concerning conditions of temporary stay of Soviet troops on the territory of CSSR. Number of the Soviet troops was specified up to 75,000. According to Article 15 of the Agreement, this ratification lasted: *"for the period of the stay of Soviet troops on the territory of CSSR".*



Transmitter of R-118 radio station

Soviet troops in Prague in August 1968

COMMUNICATION EQUIPMENT IN THE YEARS 1955–1968

Origin of Warsaw Treaty is connected with gradual damping of development of the radio stations of Czechoslovak design school. The last Czechoslovak project of classical short-wave device was completed in 1955 in the Communication Equipment Research Institute in Prague under the name RM-551. The station was included in the equipment of airborne troops at the beginning of the sixtieth as RM-33 "Zpráva" type.
In the sixtieth, the basis of radio communication on operational level was represented by R-110 radio station used for the communication with Joint Command Headquarters, R-102 for Front-level networks, R-830 for international air coordination communication and R-118 for Army-level networks. Equipping with these radio stations started in 1957 using an import from Soviet Union and Poland. The short-wave radio communication on tactical level was provided by Czechoslovak radio stations: RM-31-Ma, RM-31-A, RM-33-Z and Soviet R-112. Ultra-short-waves radio communication on tactical level was provided by Soviet radio stations: R-105, R-108, and R-109 in regimental, battalion and artillery networks and Czechoslovak made Company radio stations RF-11.

Prototype of RM-551 radio station

Prototype of hand-operated generator for RM-551 radio station

RM-33 radio station intended for airborne troops

PZ-33 short-wave amplifiers for RM-33 radio station power increase

GaZ-69 off-road vehicle with RM-33-Z radio station

Hand-operated generator for RM-33 radio station

OT-64/R2 command post

OT-62/R3 command post

R-113 radio station for tank and motorized rifle units

Prototype of R-4 radio receiver

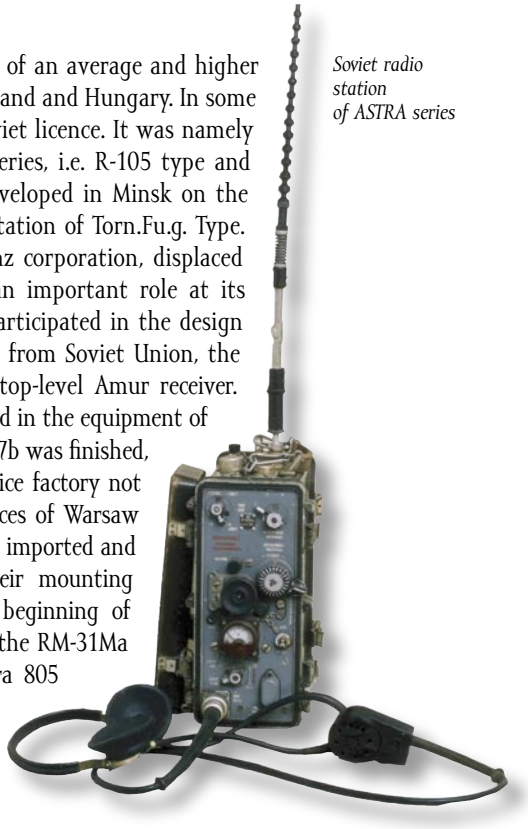
Radio elements of operational-level communication centres for wireless remote control of R-118 radio stations included RPS-II and RPS-III radio reception centres. Command communications on tactical level used the command-post armoured carriers: OT-810/R2, OT-62/R2, OT-62/R3, OT-64/R2 and OT-62/R3 equipped with radio stations of R-112, R-113, R-105 and R-105d type.
Independent Receivers for special and auxiliary purposes were represented by the following types: R-4, R-5, R-15M, R-311, R-312, R-313 and R-313M.

R-312 – Soviet radio receiver

R-5 radio receiver produced in GDR

Radio Reception Centre

R-152 AMUR 2 - Soviet radio receiver

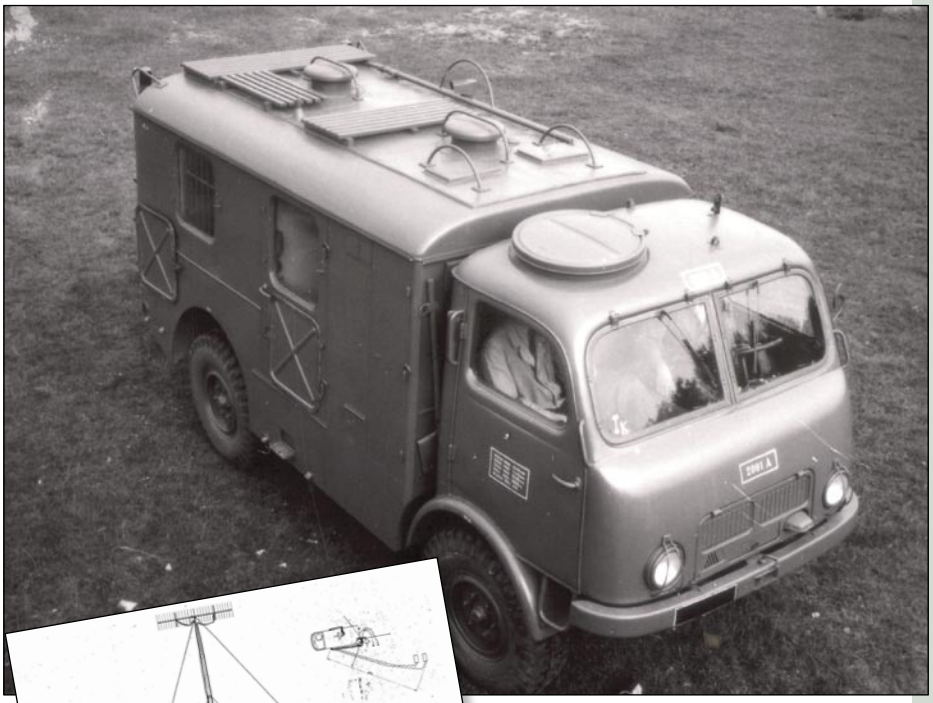


Soviet radio station of ASTRA series

Majority of the communication equipment of an average and higher power was imported from Soviet Union, Poland and Hungary. In some cases, they used the types produced by Soviet licence. It was namely the case of the radio stations of ASTRA series, i.e. R-105 type and its successors. R-105 radio station was developed in Minsk on the basis of timeless German war-time radio station of Torn.Fu.g. Type. German designers of Telefunken and Lorenz corporation, displaced to U.S.S.R. at the end of WWII, played an important role at its development. Among other things, they participated in the design of one of the first radio stations imported from Soviet Union, the modern R-103, furnished with that-time top-level Amur receiver. The R-105 portable radio station was included in the equipment of CSPA in 1952 and, when the production of A7b was finished, it was produced by licence in TESLA Pardubice factory not only for CSPA but also for other armed forces of Warsaw Treaty. The higher-power radio stations were imported and Czechoslovak industry realised namely their mounting on wheeled and tracked vehicles. At the beginning of the sixties, CSPA included in its equipment the RM-31Ma "Třinec" radio van with the chassis of Tatra 805 automobile, produced in co-operation with TESLA Pardubice and Repair Workshops No. 064, Hradec Králové. However, it was a swan song of a radio van of domestic design.

The national character in CSPA after the origin of Warsaw Treaty was preserved only by radio relay (directional) communication equipment. Soviet Army rather ignored this kind of communication. It was the same in Czechoslovak Army after 1945 when the radio relay communication was quite new discipline from both technical and tactical-organisational

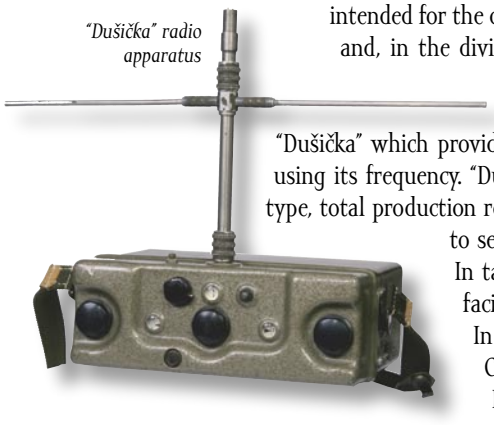
RM-31Ma "Třinec" radio van



RDS-66 radio-relay station

viewpoints. Beside the radio and line devices, it gradually became one of the basic kinds of communication for the command of units in problematic situations. The radio relay stations enabled duplex multi-channel telephone, telegraph and teleprinter communication on all command-levels.

At the beginning of the fiftieth, Dr. Ditl used German trophy electron valves to design eight-channel radio-relay station under code name of "Hora" (RDV-68). The RDV 68 was included into armament of the Czechoslovak Army in 1955 but with regard to its highly demanding manipulation and high failure rate it became non-perspective very soon. In the same time, a five-member team, headed by Josef Ženíšek, designed an average power radio-relay four-channel station "Duha". Series production of the station, under the mark "RDS-66", started in special section of TESLA factory in Hloubětín. Repair Workshop No. 064, Hradec Králové, installed these stations into Tatra 805 off-road vehicles having low van body produced by ČSAO, Dvůr Králové. Production of the van body was executed by classical technology, i.e. by metal plating of a wooden frame. At the beginning the radio-relay station consisted of two Tatra 805 vehicles. One of them contained three radio-relay stations and the other served as house wagon. Later on, the second vehicle was left out of the set due to economic reasons. The first "Duha" stations, which were replacing German "Michaels" were supplied to the units in 1957. The station was intended for the communication on the level of army with division and, in the division – on the communication line. Each station was furnished with eight transmitters. "Duha" was equipped with small apparatus called "Dušička" which provided internal communication with "Duha" station using its frequency. "Duha" station underwent an upgrading as RDS-66 type, total production reached 700 pieces and it continued to serve in the CSPA armament up to the seventieth. In tactical units and in communication with logistic facilities, it was used in the eightieth as well.



"Dušička" radio apparatus

In the fiftieth and sixtieth, the equipment of CSPA also included Soviet radio-relay station of R-400M2, R-406 and R-404 types. Permanent radio-relay network was equipped with thirteen

RDS-66M radio-relay station

TÚ-21 telephone switchboard

TÚ-11 telephone switchboard

Repair workplace of R-113 radio stations in the Repair Plant No. 064

R-400M2, twenty RDV-68, ninety six RDS-66 stations, one hundred and fifteen SNT-1 and SNT-2 sets of carrying telephony and fifty R-105 and R-105Z (R-105d station with UM amplifier) stations.

In case of combined arms division-level units, the communication on command posts was provided by SUD-1-1 sets of communication centres which were put into armament in 1963. Gradual changes in the communication system of the division-level units which followed from the requirements of headquarters and from the viewpoint of matching with the introduced kinds of communication equipment, applied pressure on innovation of composition of the set of communication centre of the division-level unit, namely from the viewpoint of the possibility of concealment of telephone and teleprinter communication.

In the middle of the fiftieth, automation of command and control started to advance. Main objective of the effort to use the automation means was facilitation, higher productivity and more precise work with information. Former building of Ministry of National Defence (MOND) was used for establishing MOND Automatic Data Processing Centre, which processed numerical data of selected ministerial agendas by means of ARITMA punched card machines. It concerned namely the wages and pays of the MOND employees and some calculations for MOND Quartering and Building Administration. Later on, it processed numerical data for the GS Material Planning Department. The Automatic Data Processing Centre was subordinated to MOND General Department.

On October 1, 1960, based on the decision of the Advisory Board of Minister of National Defence and Order of the Chief of the General Staff, they established detached MOND Main Logistics Recording Mechanisation Section. Primary mission of the section was to elaborate a long-term concept of development of automation in the Armed Forces and to gradually develop this section. In 1962, the Automatic Data Processing Centre was cancelled. The Recording Mechanisation Section was moved form the building of the General Staff to the building of DUKLA sport team, Na Julisce in Prague and new MOND Mechanisation and Automation Centre was established. The Centre was equipped with ARITMA alphanumeric machines which were programmable already that time. Further Automatic Data Processing Centres were gradually established in Tábor, Trenčín, Příbram, Písek, Hradec Králové and Prague-Karlín. Thus, the development of automatic data processing on punch-card machines began.

That time, they began to consider the use of the above mentioned category of computing machines in field training of staffs. Combat equipment reached rather up-to-date level, communication means were on electronic level already. However, the punch-card machines, included in the armament, lagged behind the above mentioned communication means. It resulted in the development of more modern mobile set of punch-card machines, called MOST. Nevertheless, the set couldn't find an effective practical use and it was cancelled. Analogue computing technology was used in weapon systems, communication equipment, in the scientific research base of the Army and in military schools.

Two important workplaces were established that time. The first of them was Electronic Research Institute in Prague-Jinonice in subordination of GS Signal Troops Department (later on, it was renamed to Research Institute No. 060 and then to Military Technical Institute of Electronics, Prague) which participated in the development of Command and control automation from technical viewpoint. The second workplace was Mechanisation and Automation Centre located in Prague-Bráník and subordinated to Deputy Chief of the General Staff (for Command). Later on, the workplace was changed to Research Institute No. 401. Establishment of special chair for the sphere of computing technology and automation at Military Academy, Brno, in 1962, deserves special attention. This chair trained the specialists for the Army and they were welcomed in all arms and services of the Army. In 1965, Military Academy installed the first MINSK-21 computer.

In 1967, the sphere of automation of command and control entered new phase of development. An independent Military Information Department was established at the General Staff which served as a body responsible for development of the given sphere in the whole Army. The General Staff, in its subordination, established an Information Centre then Computing and Projecting Centre and later on, Development and Projecting Centre of Unit Command Automation. The Automatic Data Processing Centres of higher formations were changed to Computing Centres and new bodies dealing with military information were established in the headquarters of the higher formations. EPOS-1 computer belonged to the first equipment and it served in the Army till 1972.

PRC – American compact radio station from the period of Vietnam War

AN/PRR 9 – American radio receiver serving for communication with helicopters, used in Vietnam

ACR – American miniature radio station developed on the basis of requirements from Vietnam battlefield

FSE 38/58 – minor UHW radio station from the armament of NATO armies

AN/PRC – type unified radio station of NATO armies

SIGNAL CORPS IN THE PERIOD OF NORMALISATION – THE YEARS 1969–1989

Joint exercises with Central Group of Soviet Forces became a symbol of the seventieth

Following the invasion of five Armies of the Warsaw Treaty in August 1968, Central Group of Soviet troops was deployed on the territory of Czechoslovakia. In this way, Czechoslovakia definitely lost its state sovereignty. Soviet Union began enforcing the doctrine of limited sovereignty of individual satellite countries. The ruling positions of the Soviet block states were gradually occupied by the ready-to-please performers of the Moscow orders.

The following decades meant further integration of Czechoslovak People's Army to the structure of Warsaw Treaty. In 1969, in connection with "temporary" stay of the Soviet troops, the CSPA experienced an extensive reorganisation. In 1969, National Defence Council approved the Concept of Development of CSPA, which was applied according to Soviet requirements in the next 20 years. The strength of CSPA was also reduced within the reorganisation. Number of divisions dropped from 18 to 15 (10 Land Forces divisions, 3 Air Force divisions and 2 NAD divisions).

The existing Western and Central Districts, i.e. the districts of "Army" type, came back to their original names – 1st and 4th Army. Character of the Eastern District was changed to training one. Western District Command in Tábor was newly established as a district of "front" type which would serve for the formation of a Front Command in case of a changeover to wartime state. According to the order concerning organisation and dislocation changes implemented by September 1, 1968, the Military Signal Directorates that were subordinated to the Signal Corps Directorate, GS, were now subordinated, from both command and specialization viewpoint, to the newly established National Military Signal Directorates and handed over to the material and mobilisation subordination of the Commands of Western Military District and Eastern Military District.

Jacket, Model 63 (older type), of Signal Corps Major

The Radio-relay Centre, Nové Město nad Metuji was taken out from the Signal Operational Centre, Prague and was subordinated to the Signal Corps Directorate, GS as an independent component As early as in January 1, 1969, the Testing Base No. 063 Prague-Jinonice was reorganised to Research and Testing Centre No. 063. On September 1, 1969, in connection with the organisational changes in the organisational structure of CSPA, there were a number of changes in the location and organisation in the Signal Corps. The 1st Signal Regiment of Ružomberok of the Hero of Soviet Union Captain Otakar Jaroš, Beroun, and the 1st Communication Centre, Příbram, remained in the subordination of the Command of the 1st Army, i.e. reorganised Western Military District Command. The 2nd Signal Regiment, relocated from Tábor to Písek remained in the

subordination of the Command of the 4th Army, i.e. reorganised Central Military District Command. The 4th Communication Centre, Písek, was newly established.

Western Military District took over the following units and facilities to its subordination:

- 5th Signal Regiment, Pardubice;
- 52nd Signal Regiment of Cable Directional Communication, Lipník nad Bečvou (it again included the 55th Cable Directional Battalion, Nové Město nad Metují);
- 59th Signal Regiment of Long Distance Communication, Prague-Ruzyně;
- 60th Signal Battalion, Unhošť-Čeperka;
- Communication Centre, Jince;
- Military Communication Directorates Prague, Plzeň, České Budějovice, Ústí nad Labem, Hradec Králové, Brno, Ostrava;
- Repair Plant No. 065, Český Těšín;
- 4th Communication Centre, Tábor, reorganised to the 3rd Communication Centre;
- 4th District Signal Store and Repair Shop, Červené Pečky, reorganised to the 1st District Signal Store and Repair Shop;
- 1st District Signal Store and Repair Shop, Červený Újezd, reorganised to the branch of the 1st District Signal Store and Repair Shop, Červené Pečky.

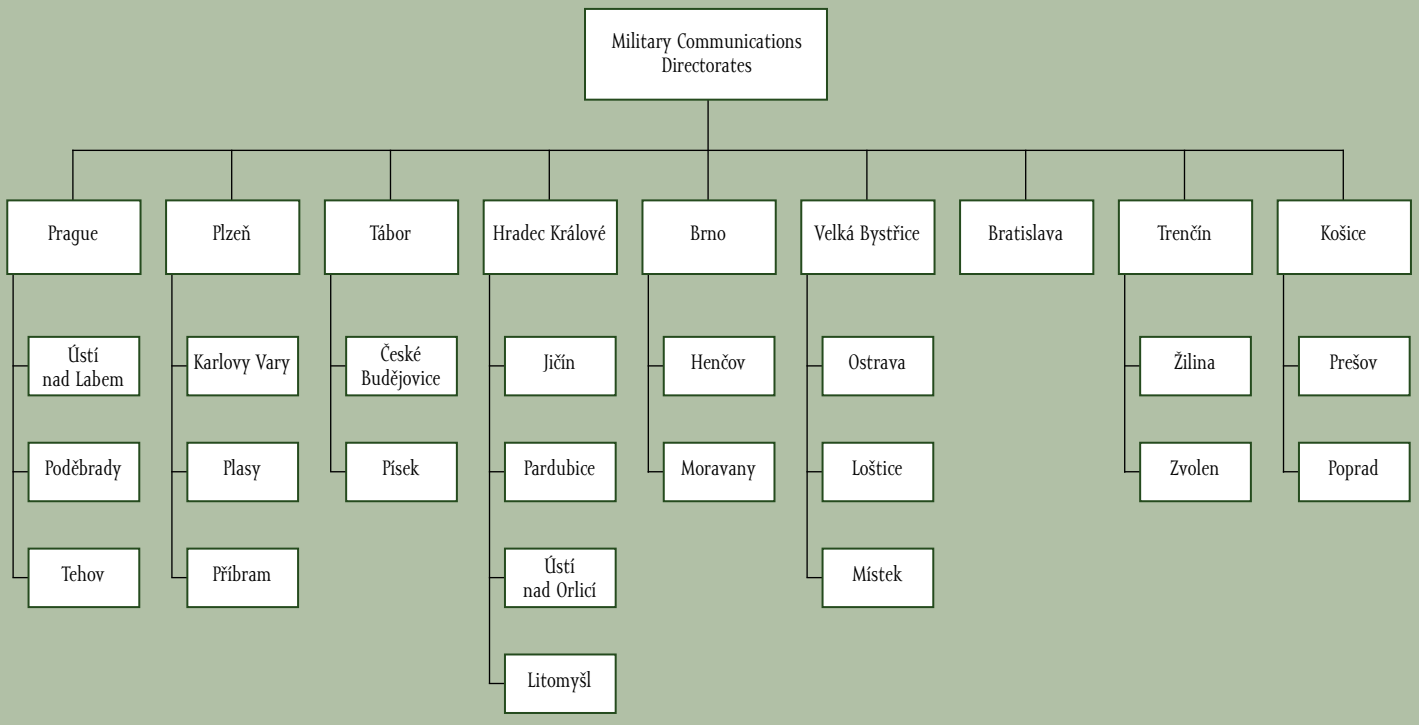
Eastern Military District, as a "training" district, took over the Signal Specialist's Training Centre, Poprad, and Military Communication Directorates, Bratislava, Banská Bystrica and Košice to its subordination. The 42nd Signal Battalion, Trenčín, 2nd Communication Centre, Trenčín, and 2nd District Signal Store and Repair Shop, Nové Mesto nad Váhom remained in the subordination of the District as well.

The following units and facilities remained in subordination of the Signal Corps Directorate:

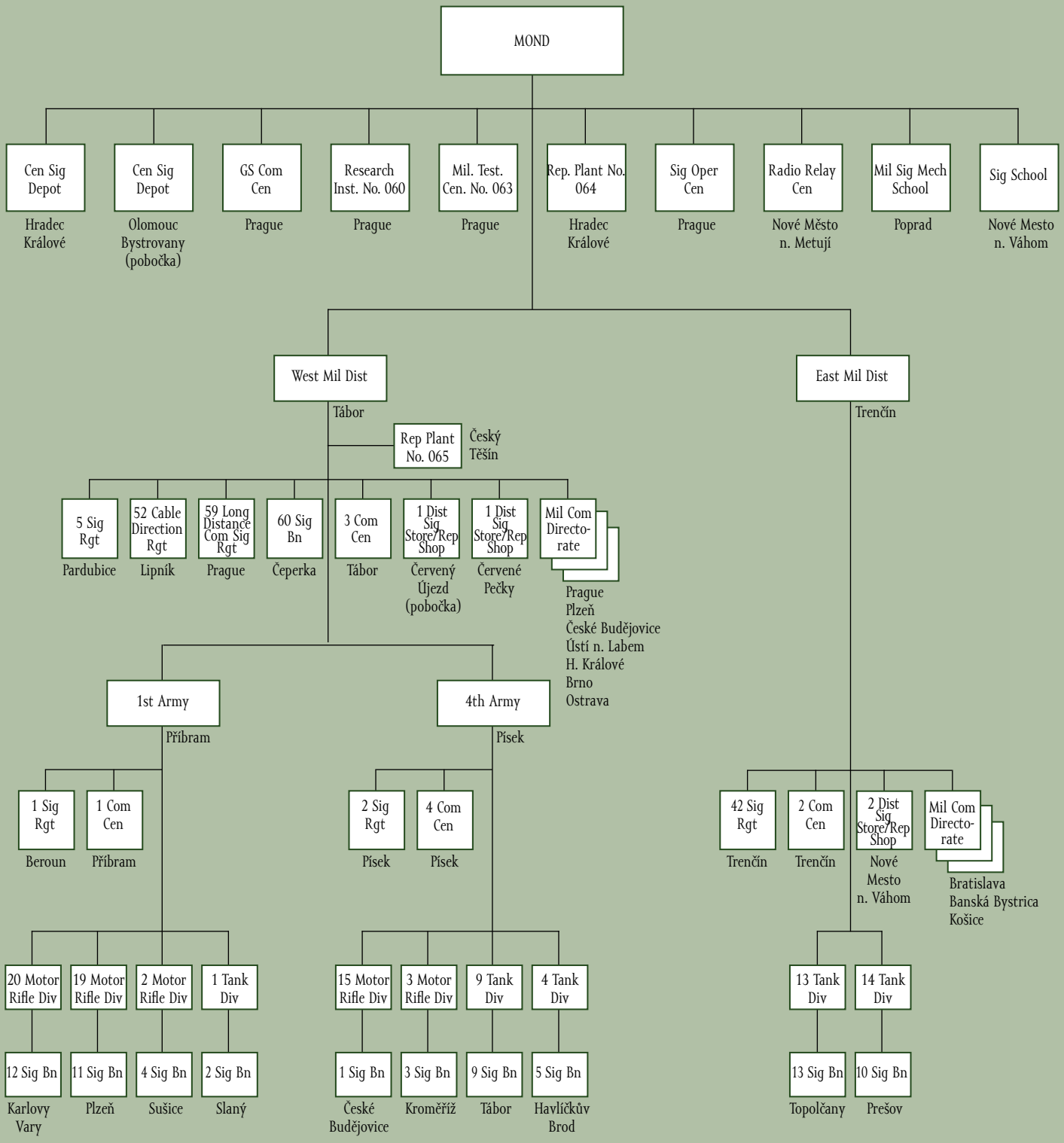
- Repair Plant No. 064, Hradec Králové;
- Central Signal Depot, Hradec Králové with its branch in Olomouc-Bystrovany;
- Communication Operational Centre, Prague;
- Communication Centre, Jičín;
- Research and Testing Centre No. 063, Prague-Jinonice;
- Signal School, Nové Mesto nad Váhom.

Training with R-118 radio transmitter

Organisational chart of Military Communications Directorates



Organisational chart of Signal Corps as of September 1, 1969



The turn of the sixtieth and seventieth passed under the sign of the beginning of the process of so called normalisation. Reorganisation of CSPA enabled to discharge a large number of inconvenient career soldiers. More than six thousand persons had to leave Army due to political reasons. Till the end of the year 1969, the Army discharged 13 out of 15 division commanders, 11 out of 15 division chiefs of staffs, 58 out of 99 regiment commanders, etc. within the purge. The purge wave hit also the Signal Corps. A number

OT-65/VP - commander's reconnaissance armoured carrier

of high quality and professionally skilled officers and WOs had to leave the Army due to political reasons. Some of them were investigated for the crime of illegal operation and maintaining of transmitting radio stations.

In 1970, Signal Corps Directorate of the General Staff elaborated the Concept of Development of Signal Corps for the period from the year 1971 to 1975 with the following objectives:

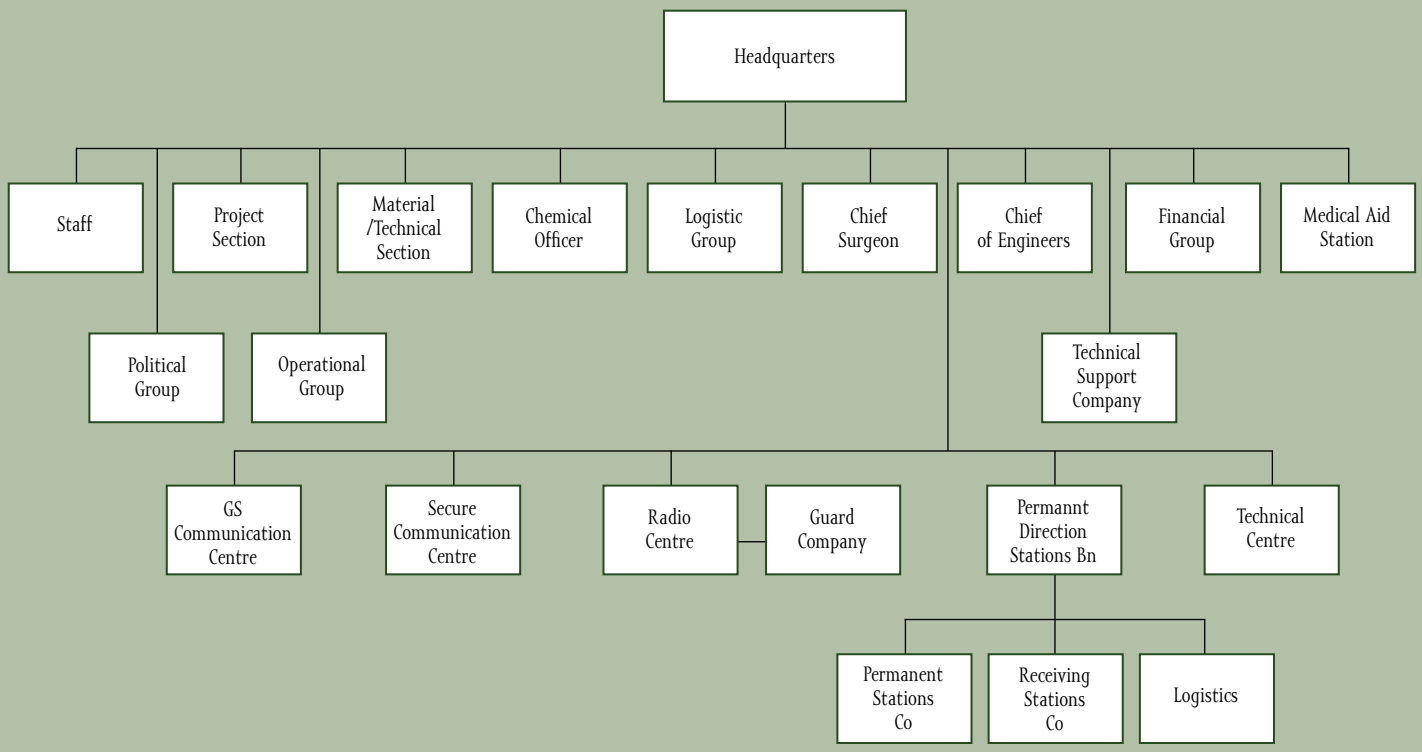
- to promote the role of the Centre and Plan at the control and provision of communication on all command levels;
- to increase the quality of communication in order to secure combat readiness with an emphasis laid on the first-echelon formations;
- to accomplish development of signal security communication in the territorial and field communication system up to the level and including the regiment;
- to upgrade and automate individual elements of communication system and to create conditions for data transmission;
- to leave the organisational structure of the units and facilities of Signal Corps on tactical and operational level practically as it is. Minor organisational arrangements, mostly due to new equipment, were also expected.

Communication system of CSPA was organised according to principles accepted by Warsaw Treaty Command. Till the year 1971, the development of communication systems was aimed namely at the promotion of quality of radio and radio relay communication with an emphasis laid on the creation of conditions for development of special Army communication (ZAS – communication by means of secrecy equipment). It was expected that the development of the system in the next years will continue in a way of gradual introduction of the equipment for mechanical processing of information and documents up to achieving a completely automated system of command. Individual units were gradually furnished with new unified communication equipment and secrecy equipment. New radio relay stations fundamentally changed the radio relay system; new system of field post office communication was introduced; new upgrading of the front and Army communication centre was going on; and introduction of new divisional communication centre was under preparation. A unified system of declaring the combat readiness was prepared for the first time in the history of Czechoslovak Army.

Organisational development of Signal Corps in the years 1971–1975 was aimed at harmonisation of the organisational structures of signal formations and units with the changing structure of the Army; introduction of new communication equipment into communication system; opening of the 2nd phase of development of the special Army-level communication and accomplishment of the development of permanent radio relay network. Military Communication Directorates were transferred from Military Districts to Central Military Communication Directorate and the Repair Plant No. 065 was transferred to direct subordination of the Signal Corps Directorate, GS. Communication in the permanent network, for the needs of Ministry of National Defence and the General Staff was provided by Communication Operation Centre; the communication within permanent radio relay network – by Radio Relay Centre.

OT-64/R2 command post and a dispatch rider with Jawa 350 motor cycle of 634 type

Organisation chart of Communication Operation Centre



RM-31-Ms radio station in Nové Mesto nad Váhom

Owing to the lack of suitable facilities and limited possibility of organisational changes in this phase, the Signal Corps Directorate didn't manage to implement the proposal on establishment of an experimental base for data transmission. With regard to the shortage of personnel and material as well as suitable buildings neither the planned Territorial Signal Brigade was established. However, the 5th Signal Regiment, Pardubice was gradually refitted to new Communication Centre of the Front.

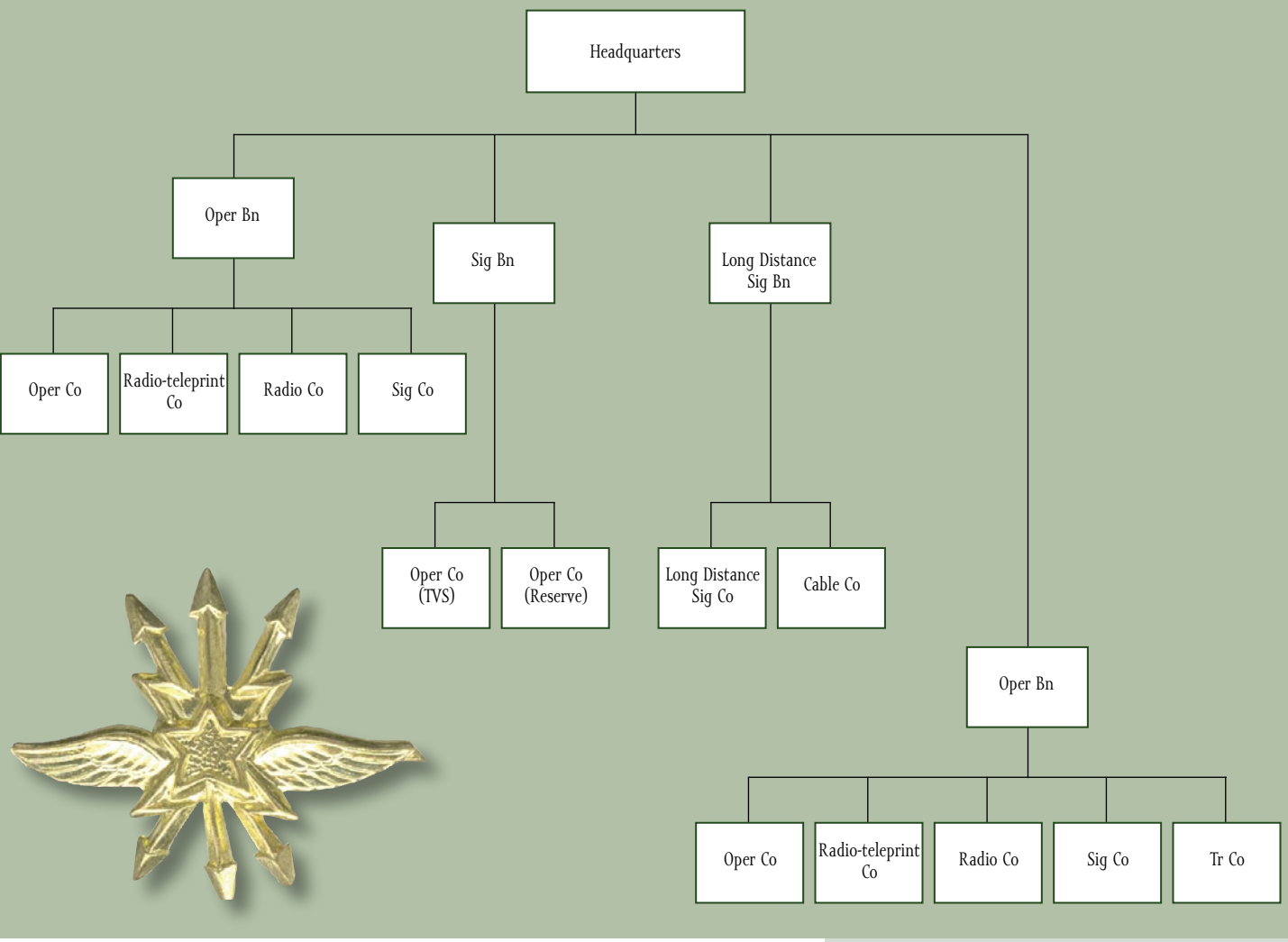
On May 9, 1972, the Signal School in Nové Mesto nad Váhom was awarded honorary name of the Signal School of Podjavorina Partisans and on September 1, 1972 it was reorganised to Military College of Podjavorina Partisans. Other minor change, connected wit this date, was reorganisation of Central Communication Depot, Hradec Králové to Supply Base No. 06 with its branch in Olomouc-Bystrovany. On the occasion of the 30th anniversary of the end of WWII, on May 9, 1975, the Signal Specialist's Training Centre, Poprad was awarded the honorary name of the 1st Czechoslovak Army Corps in the U.S.S.R.

In order to provide communication in the field, the Front disposed the following units and facilities in that period:

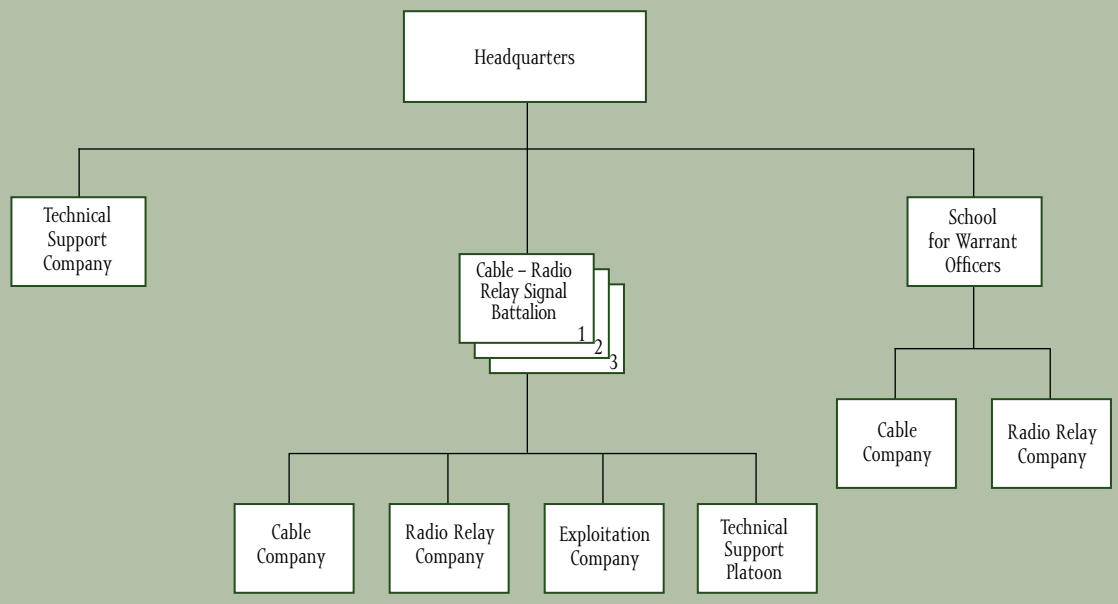
- 5th Signal Regiment intended to provide communication for the commander and staff of the Front. The Regiment established communication centres and internal communication in all command posts of the Front as well as between the command posts. Using the Communication Centre of the Front, it provided line and radio communication with all combined-arms armies and individual components of the Front complex as well as radio communication for the Front.
- 52nd Cable Radio Relay Regiment which, using its direct radio relay connections, provided the radio relay and line communication of the Front with the first-echelon armies, developed cable lines and participated in the development of the communication axis of the Front;
- 59th Long Distance Communication Signal Regiment provided radio relay communication in the supporting communication network of the Front and its connection to the communication centres of the Front command posts.
- 60th Signal Battalion – responsible for the communication at the logistics command post of the Front, including provision of radio communication with logistic formations and facilities of the Front.

The communication in the garrisons and on the territory was provided by communication centres.

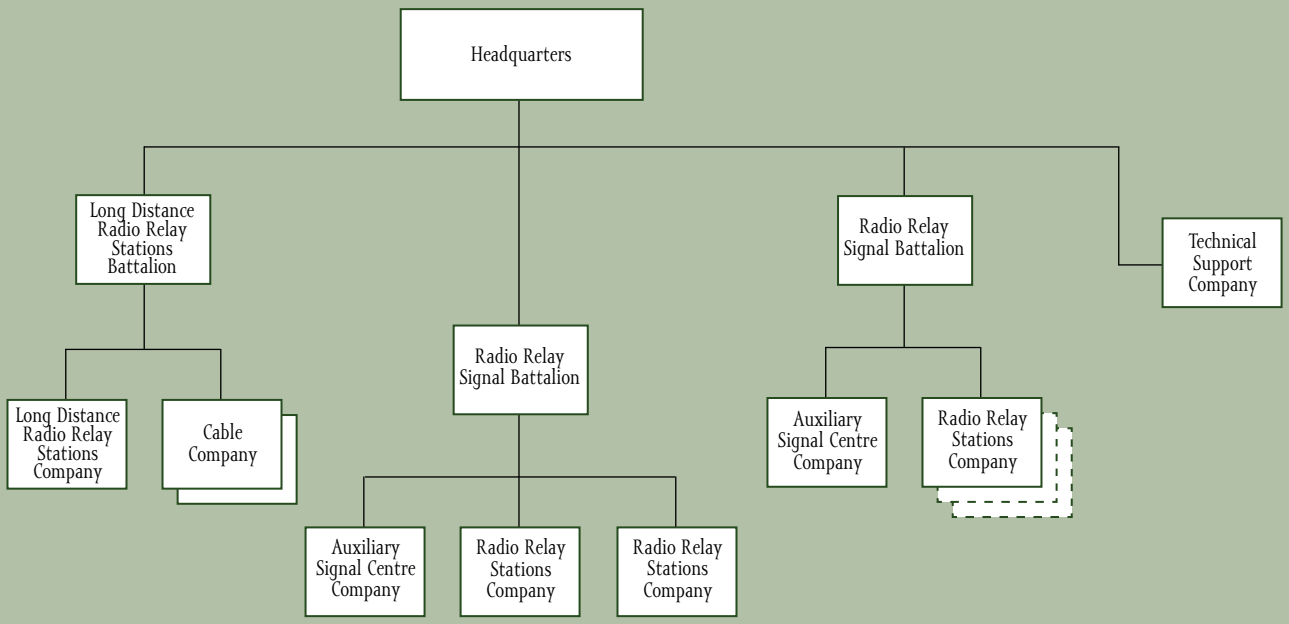
Organisation chart of the 5th Front Signal Regiment



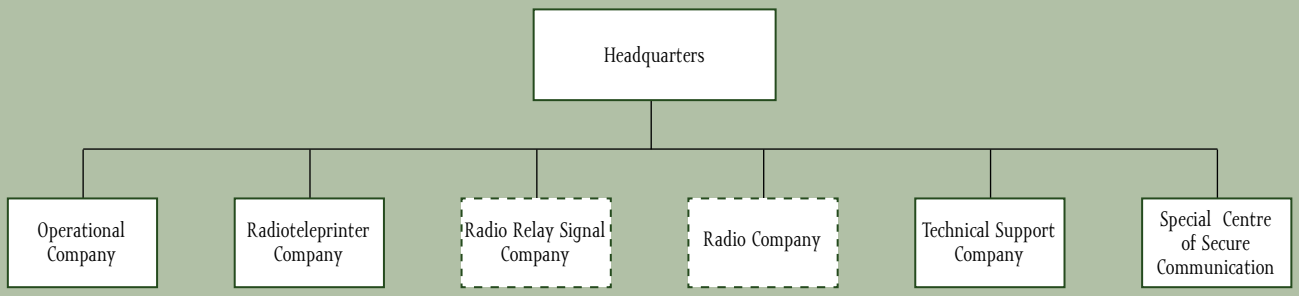
Organisation chart of the 52nd Cable - Radio Relay Signal Regiment



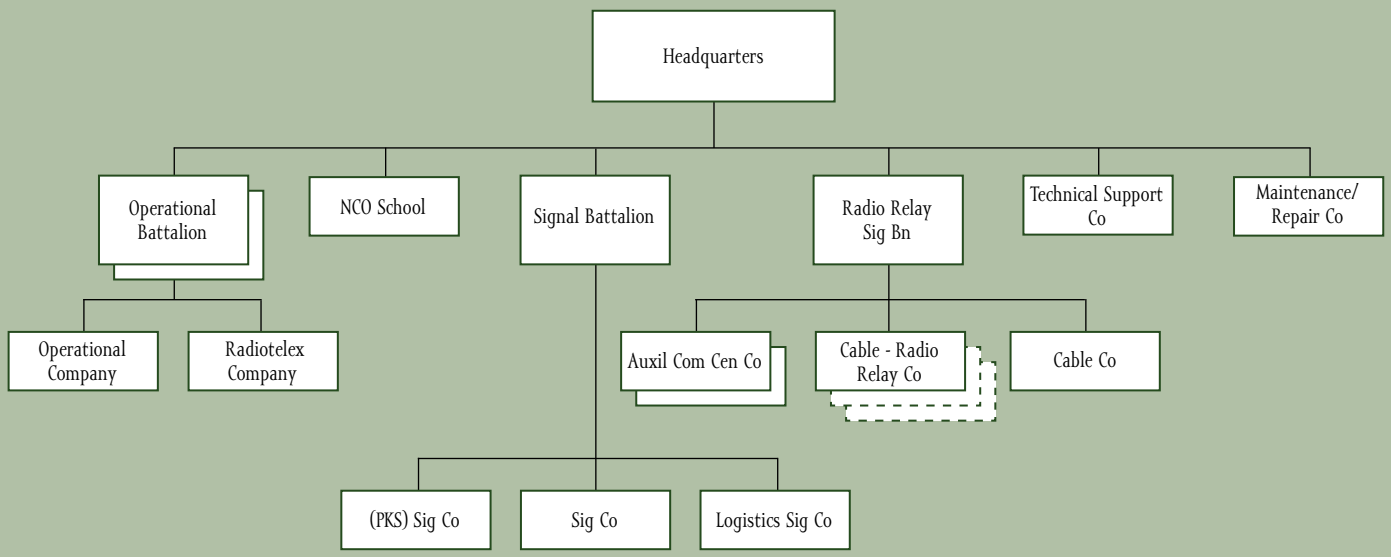
Organisation chart of the 59th Long Distance Signal Regiment



Organisation chart of the 60th Signal Battalion of the Front Rear Area



Organisation scheme of the 1st and 2nd Signal Regimenst of the 1st and 4th Combined-Arms Armies



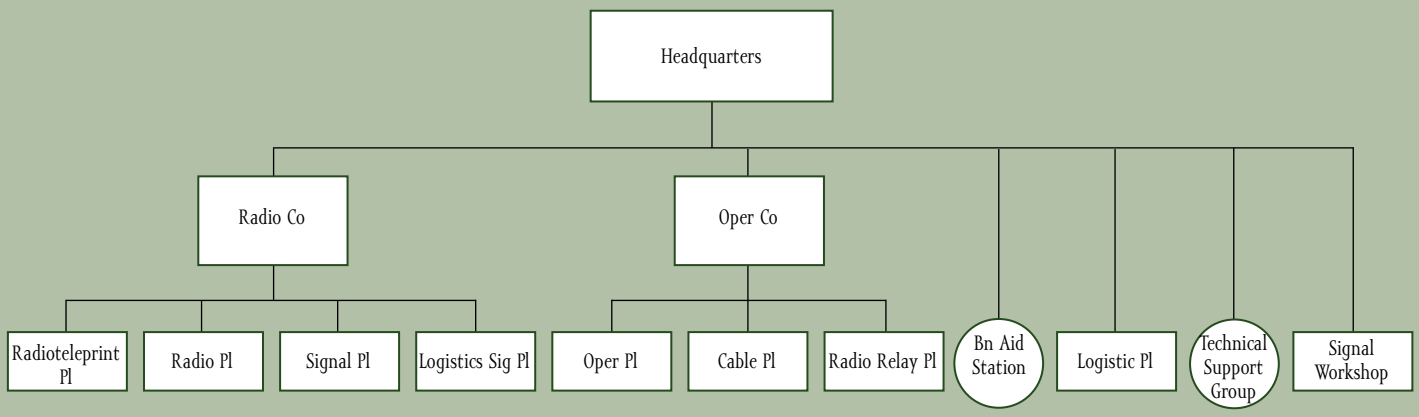
ASTRA-series radio station

Each combined-arms army disposed of one signal regiment providing the communication in the field. The combined-arms divisions had subordinate signal battalions and the combined-arms regiments had signal companies. Complete communication of the 1st Army was provided by the 1st Signal Regiment and the 4th Army – by the 2nd Signal Regiment. The regiment provided communication of the Army with combined-arms divisions, heavy artillery brigade and other formations of the army branches. Its Long Range Communication Battalion developed supporting communication network of the Army, installed the communication in the communication centres of the Army command posts and provided the radio communication for the commander and Army headquarters.

The organisational changes in the second half of the seventieth were connected namely with the transfer of combined-arms divisions of CSPA to so called single-type organisation, which brought, beside the introduction of modern equipment, repeated copying of Soviet organisation structures. Majority of the organisational changes in that period were made in connection with refitting the new communication equipment with the emphasis laid on the signal security equipment. Implementation of these changes resulted in substantially higher quality of communication on both tactical and operational levels. On September 1, 1978, they submitted a proposal concerning the organisational changes in the signal

Installation of lines

Organisation scheme of a single-arm division's signal battalion



battalions of a model division with unified organisational structure but with different peacetime strength. The single-type signal battalions of the division provided complete communication for the commander and headquarters of the division.

Relocation changes of this phase were accomplished on October 1, 1979 when the 1st Signal Regiment moved from Beroun to Plzeň-Bory and on November 1, 1979, when the 59th Regiment of long Range Communication moved from Prague-Ruzyně to Beroun. The changes were made also in the sphere of research. On October 31, 1979, Research Institute No. 060, Prague-Butovice and Research and Testing Centre No. 063 Prague-Jinonice were cancelled. On the other hand, next day, Research Electronic Institute, Liptovský Mikuláš was established and subordinated to the Main Technical Directorate, MOND. The Institute incorporated the whole Research and Testing Centre No. 063.

As a result of introduction of the new equipment, changes in the organisation of command and relocation of the command posts, they elaborated a new plan of the organisational of development of Signal Corps for the years 1981–1985. Major organisational changes were made on the operational level and they included the following tasks:

1. Front:

a) to newly establish
- two signal battalions of long range communication battalions of special signal security (one in peacetime) – realised by October 31, 1982 in the 52nd Long Distance Communication Brigade;
- the third front communication depot.

b) to reorganize
- 5th Signal Regiment, 52nd Cable Radio Relay Regiment, 59th Long Distance Communication Regiment; to transfer all of them to signal brigades; it was accomplished by October 31, 1952.

c) to disband
- Communication Centre, Jince (to attach it to the 5th Signal Brigade);
- Special Purpose Signal Company (to attach it to the 5th Signal Brigade);
- Long Distance Cable Company (to attach it to Communication Operation Centre);
- cable companies (to attach it to the 52nd Signal Brigade);
- 61st and 63rd Signal Battalion;

Flare pistol, Model 44/81

Implementation of the suggested changes enabled to develop the field communication network according to new principles and to establish independent long distance lines behind the combined-arms army and heavy artillery brigade, including the use of special signal security communication (VČ);

2. Combined-arms armies:

a) to newly establish
- radio relay cable battalions;
- long distance communication companies to provide communication for heavy artillery brigades;
- mobile communication repair shops;

b) to reorganize the signal regiments;

c) to disband the long distance communication battalions.

With regard to the reorganisation, they were able to provide communication from three command posts for combined-arms armies, to build independent lines to the heavy artillery brigades and to increase the quality of communication centres at the logistics command posts of the armies. In peacetime, the repairing capacity was enlarged, namely for the tactical level.

3. Air Defence:

to reorganize
- 17th Signal Regiment;
- 23rd and 24th Signal Regiment

The organisational changes resulted from the introduction of new automated command system and necessity to integrate the new communication equipment.

4. 10th Air Force Army

a) to newly establish a radio relay cable battalion (it was accomplished by October 31, 1982);

b) to reorganise the 10th Signal Regiment – accomplished by October 31, 1982;

c) to disband the long distance communication battalion – accomplished by October 31, 1982;

The organisational changes were forced by the requirements to detach an independent radio relay cable battalion and the necessity to integrate the new communication equipment.

5. Ministry of National Defence and Military Districts:

a) to newly establish a radio relay and tropospheric scatter communication regiment;

b) to reorganize
- Communication Operation Centre;
- Communication centres of Western Military District, Eastern Military District, 1st and 4th Army and 10th Air Force Army.

c) to disband
- Radio Relay Centre;
- Long Distance Communication Battalion.

The organisational changes resulted from the requirements to improve the international communication coordination among the Warsaw Treaty armies (development of tropospheric scatter communication), early transfer of the signals concerning combat readiness to the headquarters and troops by permanent network and its use when moving into allocated areas.

Simultaneously, the exchanges and field post office bases were to be changed to the main exchange and field post office centres of communication and the workshop and supply facilities were to pass through an organisational arrangement. The organisational arrangements connected

Classroom of radio-relay stations

OT-64/R3 command post

R-405 radio station of the uniform P-240 communication centre

with the development and maintenance of SVITAVA close signal device and the arrangements resulting in the integration of the newly delivered data transmission communication equipment were also going on. However, some changes could not be implemented due to the shortage of personnel.

The above mentioned changes were to reduce the peacetime strength by 58 persons, comparing with the number as of October 31, 1980 and the wartime strength was to drop by 673 persons. The relocation changes included even the proposal to move the 5th Signal Brigade from Pardubice to Strašnice in order to bring the unit nearer to the area of the expected performance of its tasks. Proposal to move the 52nd Cable Radio Relay Regiment from Lipník nad Bečvou to Pardubice was not implemented. In 1984, Signal Corps Directorate, GS, submitted a proposal concerning reorganisation of radio relay battalions of combined-arms armies into radio relay regiments. Thanks to this, it was expected that a complete control of development of the communication systems within combined-arms armies would be secured since the year 1986.

ASTRA-series radio station

In connection with the organisational changes, the following units and facilities were established by November 30, 1981:

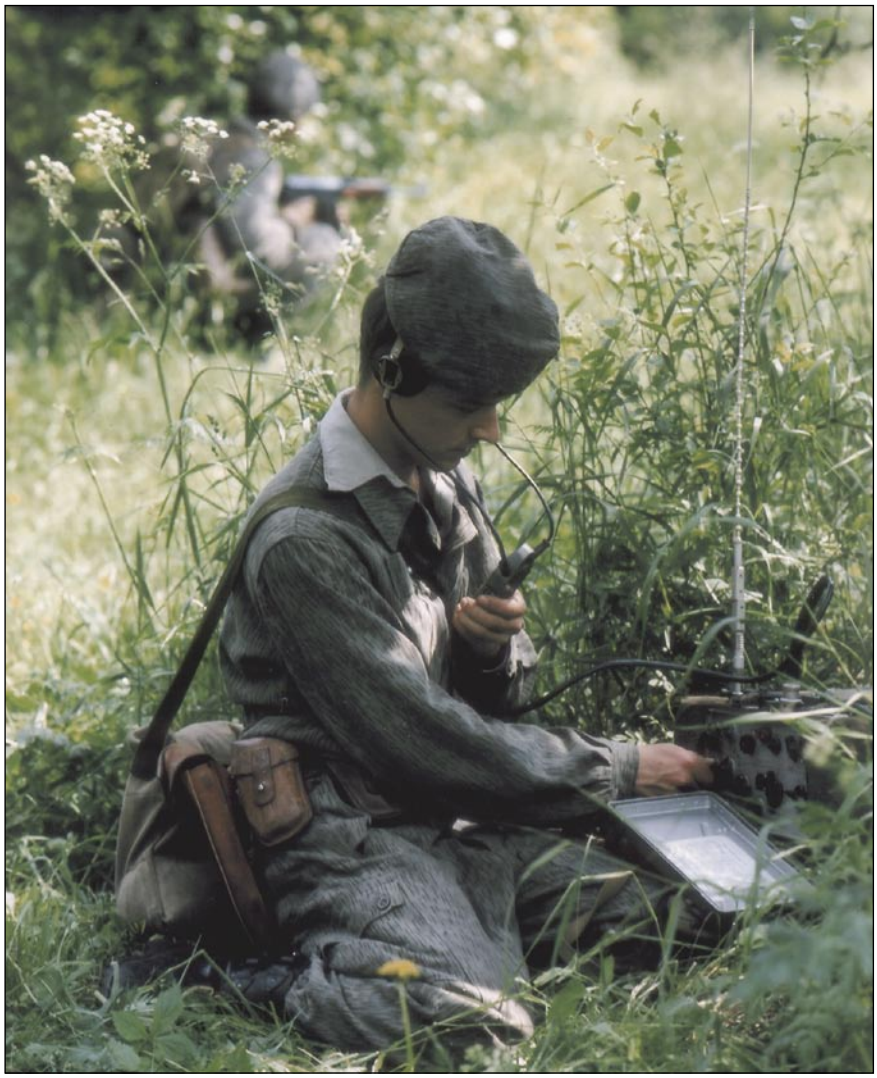
- 2nd Radio Relay Cable Battalion, Plzeň – subordinate to 1st Army Command;
- 6th Radio Relay Cable Battalion, Plzeň – subordinate to 4th Army Command;
- 31st Mobile Communication Repair Shop, Plzeň – subordinate to 1st Army Command;
- 34th Mobile Communication Repair Shop, Písek – subordinate to 4th Army Command;

The following units were reorganised by October 31, 1982:

- 5th Signal Regiment, Pardubice and Communication Centre, Jince – to 5th Signal Brigade, Pardubice;
- 52nd Cable Radio Relay Regiment, Lipník nad Bečvou – to 52nd Long Distance Communication Brigade;
- 59th Directional Stations Regiment, Beroun – to 59th Long Distance Communication Brigade.

In April 1984, in conclusion of this phase of development of the Signal Corps, the 5th Signal Brigade was relocated from Pardubice to Strašice and on December 31, 1984, two centres of permanent tropospheric scatter communication (BARS) were established and subordinated to the Signal Corps Directorate, GS.

Several organisational changes were made even in the last years before the downfall of communist regime. In 1986, the centre of permanent tropospheric scatter communication was attached to the MONF Radio Relay Centre. At the same time, the 5th Signal Brigade



R-129 radio station for airborne units

established a Space Communication Signal Company. On October 31, 1988, the 2nd Radio Relay Cable Battalion, Plzeň, was reorganised to 11th Long Distance Communication Signal Regiment and the 6th Radio Relay Cable Battalion, Písek – to 24th Long Distance Communication Regiment. The last organisational change was made on July 1, 1989; it was reorganisation of Repair Plant No. 064, Hradec Králové and Repair Plant No. 065, Český Těšín to Military Repair Works No. 065.

In September 1988, Maj. General Jan Vintr was appointed Chief of Signal Corps, GS CSPA.

Organisation of refitting the Signal Corps with new equipment together with the changes in the system of control of the communication system required an arrangement of the system of signal specialist's training. Simultaneously, the pressure applied on the increase of the number of WOs was increasing, namely due to massive introduction of secrecy equipment and highly demanding equipment. In 1968, this tendency was reflected at Antonín Zápotocký Military Academy, Brno, by opening a new model of study which was codified as late as 1972.

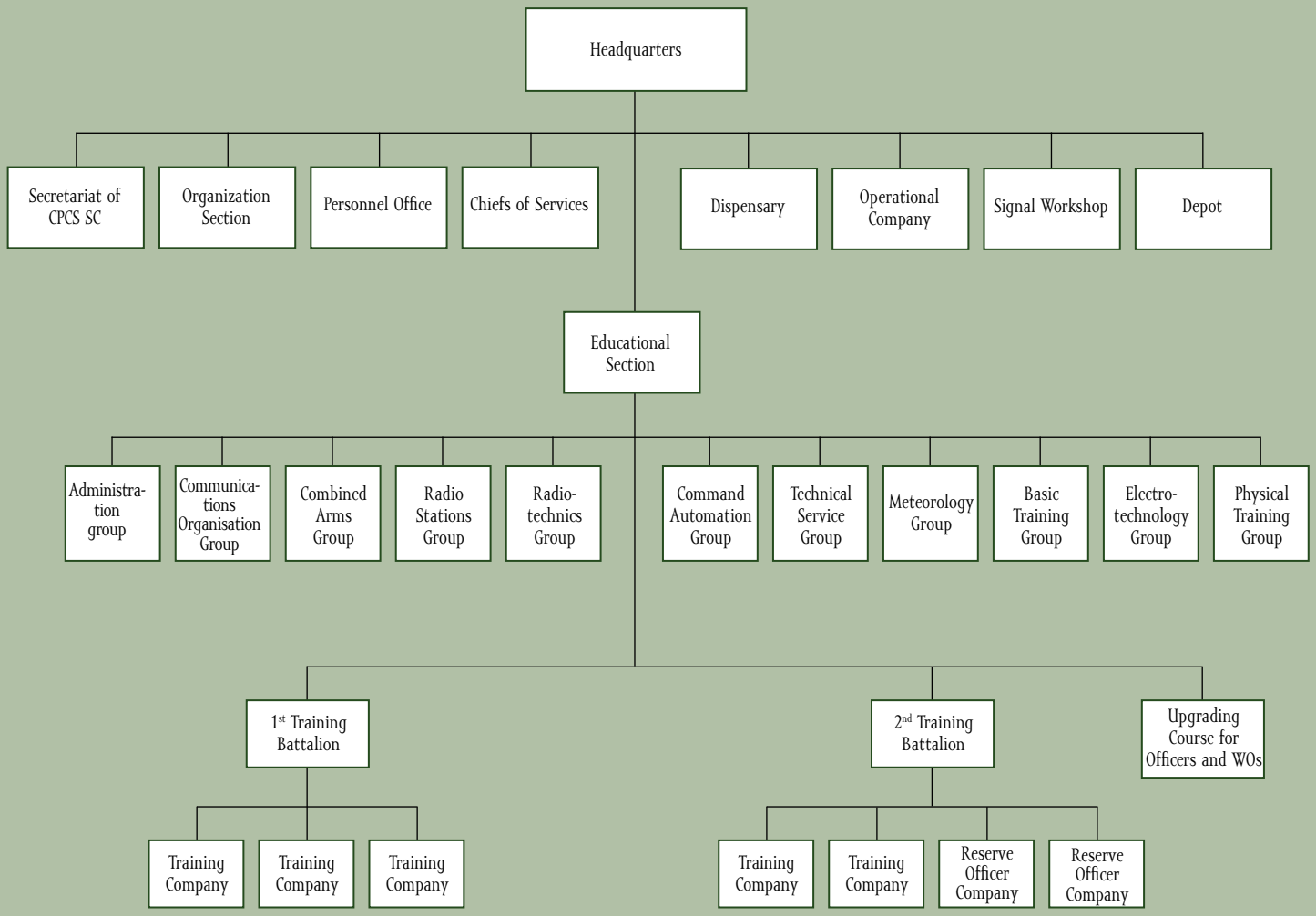
In the years 1971 – 1975, military system of schools was completely reorganised.

In 1972, structure of Antonín Zápotocký Military Academy was changed. The Signal Communication chairs were reorganised within the Signal Corps´ field of operation. Two new chairs, K 10 – Organisation of Communication and K 20 – Communication and Data Transmission, were established. Colonel Jaroslav Dostál was appointed Chief of K 10 and Colonel Jaroslav Tichý – Chief of K 20. In 1981, the K 10 and K 20 were transferred to subordination of the Faculty of Combined-arms, Army Branches and Services. The faculty educated the students of post-gradual study, students – career soldiers with practise in

Maj. General
Jan Vintr
(*1940)

A graduate from Artillery School and Signal Corps Officers Conversion Course. In 1974, Jan Vintr graduated from Antonín Zápotocký´s Military Academy (AZ MA) in Brno. He served in the positions of Signal Regiment Chief of Staff, Signal Regiment Commander, Deputy Chief of Signal Corps and Chief of Signal Corps of Western Military District. In 1987, he accomplished his post graduate study of combined arms operation specialisation at AZ MA. Since September 1988 till January 1990, he held appointment of Chief of Signal Corps of Czechoslovak People's Army, GS. Since the year 1990 till May 1991, he was Deputy Chief of the General Staff.

Organisation chart of Signal School



Classroom with R-130 radio station at Military Academy of Land Forces in Vyškov

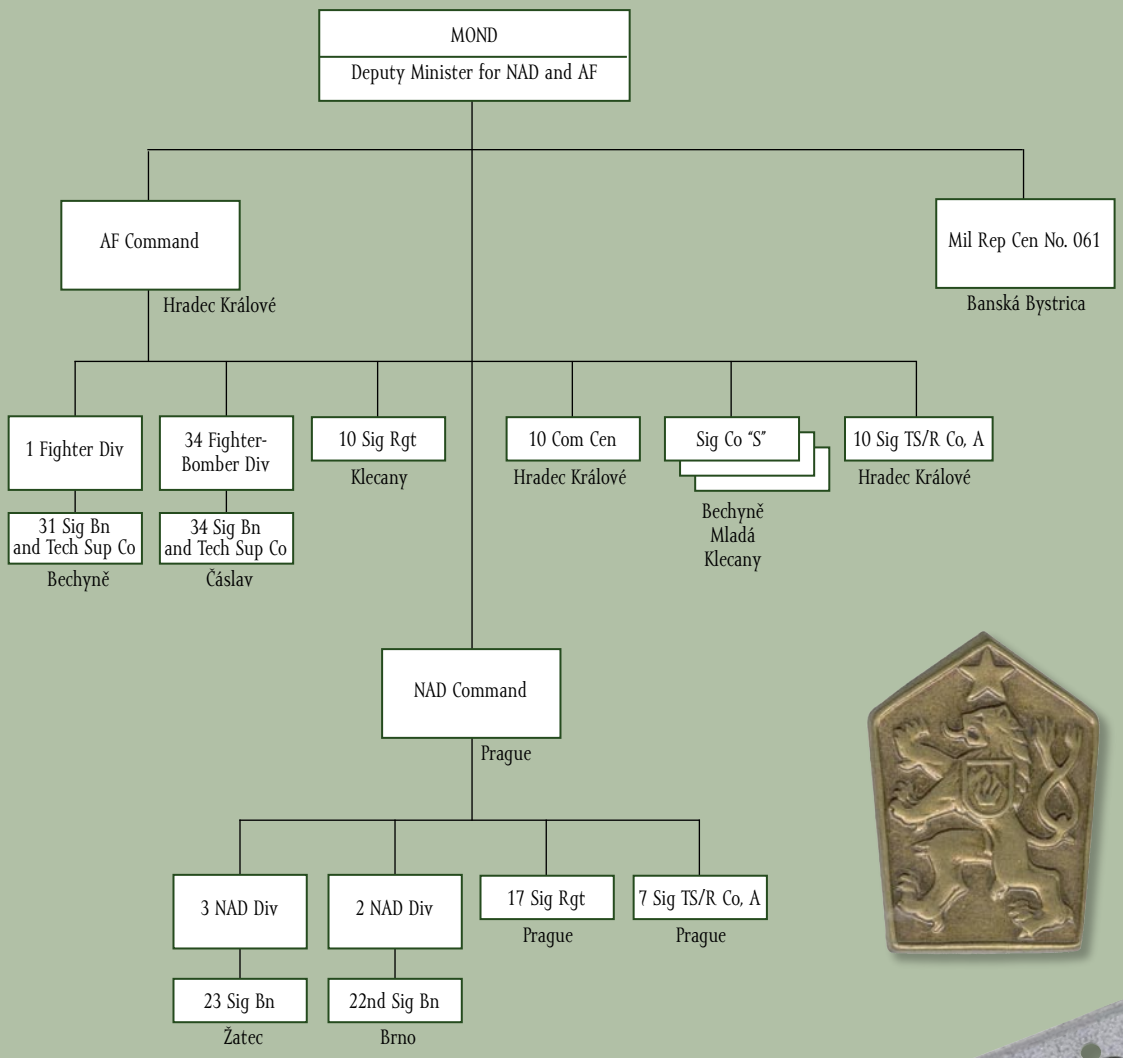
units and the student – career soldiers without any practise in units. In 1973, the faculty was divided into 2nd Faculty of Military –Engineering – Armament and 3rd Faculty of Military – Engineering – Army Branches and Services. The 3rd Faculty established a Chair of Reconnaissance and Communication Technology.

Signal Corps Directorate, GS, participated in the reorganisation of Military School in Nové Mesto nad Váhom and Higher Military Technical School in Liptovský Mikuláš. In spite of the fact that the recruiting of applicants for the study from among the civilian youth was successful to about 50% only, the foundations of university education of the Signal Corps Officers were laid. Training of commander's corps was held in Military Technical College in Liptovský

Mikuláš namely. The Antonín Zápotocký Military Academy, Brno, trained technical cadres and in its three-year-long courses, also the officers with the practice in units. Signal Corps was short of 705 officers, out of it - 395 graduates of military academy.
Since the year 1971, signal communication tactical exercise on the level of company, battalion and regiment were organised every year. Moreover, there were regular combined-arms specialty exercises on the level of regiment, division, army and front command post exercise held as well. In 1976, the exercises titled ŠTÍT 76 (Shield), MORAVA 76, NEUTRON 76, GRANIT 76, ÚDER 76 (Assault) and DRUŽBA 76 tested the qualities of the new communication equipment providing the communication in field communication systems. The experience proved that the development of Signal Corps as a whole was properly aimed at the most important areas, i.e. signal security

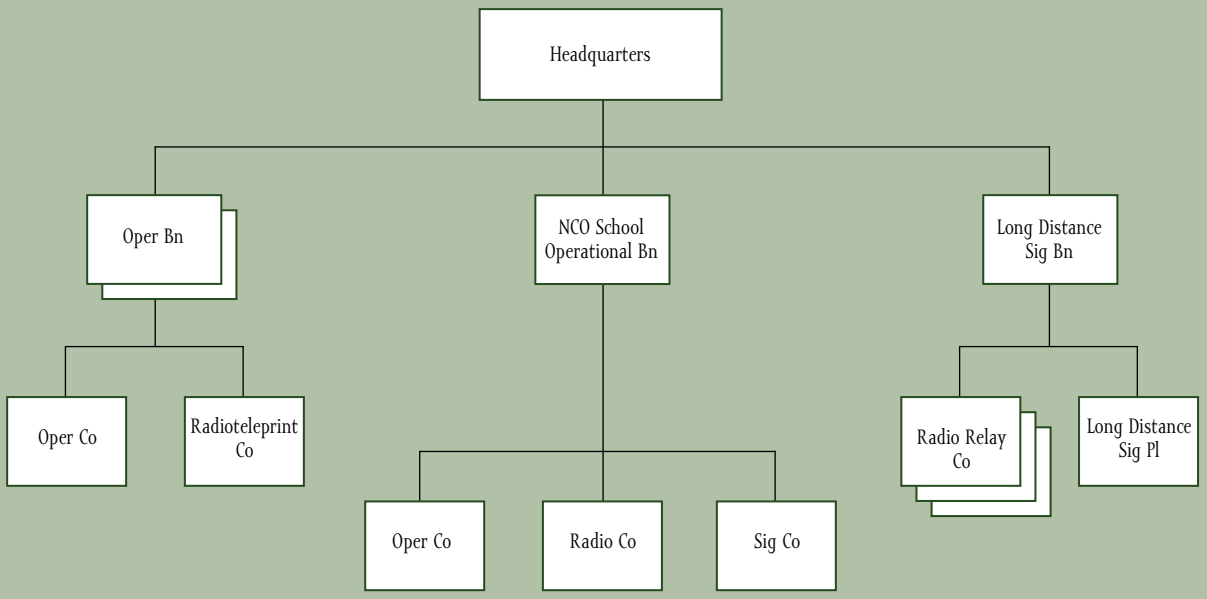
Badge of the Class I flight wireless operator

Organisation chart of Signal Corps units of the Air Force and NAD as of September 1, 1969.



and telegraph operation of special army communication (ZAS). 4,748 members of the CSPA Signal Corps participated in the signal communication coordination exercise ELEKTRON 77, held within the operation-tactical exercise SOJUZ 77.
Organisational structure of the signal formations Air Force and NAD formed in the middle of the sixtieth didn't change too much even in the next period. In September 1969, they established 10th Communication Centre for the needs of 10th Air Force Army Command. The signal battalions remained subordinate to NAD corps even after their reorganisation to NAD divisions.

Organization chart of the 10th Signal Regiment of AF Army



Composition of the signal units was not changed even after the reorganisation of the 7th NAD Army into NAD Command made on January 1, 1981. In November 1976, the 10th Radio Relay Cable Battalion was detached from the structure of the 10th Signal Regiment and made independent.

In the second half of the eightieth, as a result of economic and technical retardation, Warsaw Treaty was not able to respond adequately to further strengthening of NATO. Soviet Union, headed by Michael Gorbatschow, started the reform – perestroika. Tremendous expenditures on armament and the atmosphere of growing stress between Warsaw Treaty and NATO, forced the U.S.S.R. to conclude a partial agreement with the U.S.A. concerning liquidation of some kinds of nuclear weapons in 1987. The so called peace initiative of the U.S.S.R. in 1988 concerning the area of conventional weapons included reduction of the strength of Soviet Army by 500,000 persons and 10 divisions.

Subsequently, Czechoslovakia joined the Soviet Union with its own initiative to limit the expenditures on the Army in the years 1989–1990 by 15% and to reduce the number of personnel in combat units. As of January 1, 1989, Czechoslovak People's Army consisted of nearly 200,000 males and females and 14 divisions. Its armament involved 4,500 tanks, 4,900 infantry fighting vehicles and armoured carriers, 4,100 pieces of classic and missile ground artillery, 407 combat aircraft and 101 helicopters.

Growing crisis of the system resulted in gradual decay of the communist power and Warsaw Treaty. In November 1989, the communist regime in Czechoslovakia collapsed. In the critical days, they activated a system intended to liquidate internal disorder, which was created in April 1971 already. In spite of that, the Army did not practically interfere into internal policy development.

ASTRA-series radio station

COMMUNICATION EQUIPMENT IN THE YEARS 1969–1989

The communication equipment used by CSPA since the seventieth consisted mostly of Soviet made products. The radio stations mentioned in the preceding chapter were imported namely from the Soviet Union and partially from Poland and Hungary or they were produced by licence by the Czechoslovak radio technical industry. Selected types of the stations were mounted on wheeled and tracked vehicles by the Czechoslovak industry as well. At the turn of the years 1969 and 1970, the refitting by modern radio equipment gradually started. According to the plan of development of the Signal Corps for the years 1971–1975, the radio communication remained being the main kind of communication in the field and territorial system as well as in the communication system of NAD and Air Force. In that period, its development was aimed at the introduction of modern equipment with the emphasis laid on security and on the solution of wireless remote control of radio transmitting centres and stations on operational and operational-tactical level of command. The whole development of the communication means proceeded according to unified tactical and technical requirements only and each army of the Warsaw Treaty could develop only the means which were permitted by the Technical Committee of the Joint Command. The reason given for this procedure was the necessity of unification of armament based on the assumption that further development of the communication system will be characterized by the effort to unify the technical and organisational principles. The unification was a condition for planned changes in subordination of operational divisions among individual Armies of Warsaw Treaty. Beside the economical interests of the U.S.S.R., the consistent unification kept an eye on securing mutual coordination, interchangeability, repair ability and material provision. A shortcoming of this system was his regular several-years-long delay between the introduction of new equipment and its import or starting of the production by licence.

R-114 radio station of ASTRA series

R-106 radio station

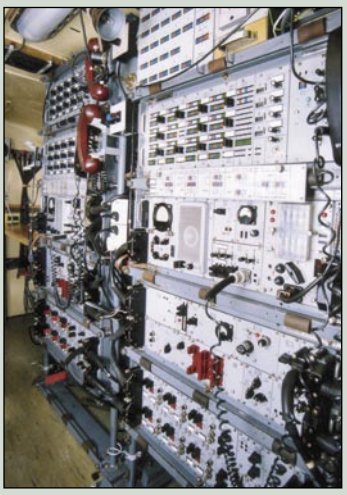
The Plan of the Signal Corps Directorate, GS, set the following tasks for refitting of units with the communication equipment:

- Gradual replacing of the existing VHF radio stations of R-105, R-108, R-109, R-114 type and SW radio stations of divisional type by the new and modern types TAKT-1, R-107, R-123, R-111, R-130 and TAKT-2 radio stations (development of the station stopped the requirement upon unification of the Armies of Warsaw Treaty);
- Gradual replacing of the existing SW radio stations on operational level: R-118, R-102 and R-830 by new R-140 type;
- Gradual replacing of radio relay communication on the level of the front-army-division by the deliveries of radio rely stations of RDM-12 and RDM-6 type.
- Replacing of the existing carrier telephony vehicles (NOT) for the command posts and auxiliary communication centres (PSU) by new NOT-PSU70 and NOT70 sets;
- Provision of new secrecy equipment for the combined-arms divisions, development of reserves of spare parts and expendable supplies, development of technical base including computing technique, ensuring of the installation of communication equipment into vehicle etc.

In total, 5,556 billion CZK were earmarked for the purchase of communication equipment.

NOT-52 workplace

NOT-A workplace



SNT 6 set of carrier telephony, a part of NOT-PSU70

Transmitter of R-140 radio station

R-155 receiver from the set of R-140 radio station

In the year 1970, the 1st, 2nd and 5th Signal Regiments experimentally used the first R-140 stations installed in box superstructures on Soviet ZIL-157 trucks instead of the mobile R-118 SW sets. In 1974, these sets were cancelled and R-140 radio stations were installed into Praga V-3S with semi-trailer. The new R-140 radio stations were preferentially included into radio networks of combined-arms headquarters beginning from division and higher, artillery, missile troops, Air Force and NAD beginning from regiment or airport and higher, international coordination networks beginning from division and higher and special radio directions.

At the beginning of the seventieth, the UHF and SW radio stations used on tactical level were replaced by new means having wider frequency extent and higher power: TAKT-1 (RF-10), R-123, R-111, R-130 and partially R-107. After successful tests of company UHF radio station of TAKT-1 (RF-10) type in the units, they also organised comparative tests with Soviet MALYSCH and Bulgarian NARCYS-M radio stations. The tests proved that RF-10 satisfies the unified tactical and technical conditions and in 1976, it was introduced in the armament of CSPA. In that year, they produced 2,500 RF-10 sets for CSPA. The level of platoon-company was provided with the radio station of SÁVA (RF-12) and VXW-010 type till the year 1974.

Since the year 1971, new commander's radio stations were introduced and together with the staff workplaces, they were installed in the box superstructures of the off-road Praga V3S trucks in order to increase the quality of the commander's communication on the division level. The R-3A type with R-107, R-111, R-123, R-130 stations and AT version with T-219 secrecy equipment were intended for the commanders of tank, motorized rifle and artillery formations. Since the year 1976, they produced 189 R-3A sets and 14 R-3AT sets in total. The R-4A sets consisting of R-107, R-111,

RF-10 radio station

RF-12 SÁVA radio station, produced in Yugoslavia

VXW 010 radio station

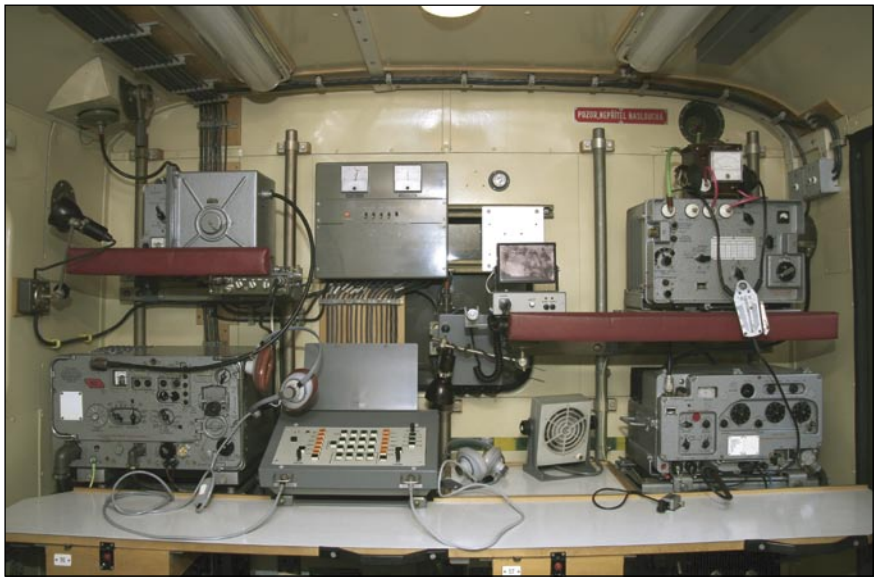
R-130, R-138 stations and AT version with T-219 secrecy equipment were introduced on the operational level. Till the year 1976, they produced 30 R-4A sets and 2 R-4AT sets. In the years 1976–1977, all the sets were gradually replenished with the T-219 secrecy equipment. The commander's R-3AT and R-4AT radio stations provided signal security of the front commander and army commanders with the divisions and heavy artillery brigades, division commanders with regiments, chief of intelligence, reconnaissance battalions, chief of missile troops and artillery and independent artillery battalions. The sets enabled commanders and staffs to command and work inside the van directly on the spot or on move using SW and UHF radio network and, having the set equipped with P-29 secrecy equipment, also in signal security regime. According to the plans, all the divisions and heavy artillery brigades should be equipped with 178 sets of R-3A commander's radio stations and 30 R-4A sets. Upgrading of OT-62/R3 armoured carriers with the radio stations of R-130, R-111 and R-123 types was proceeding in parallel with it.

R-111 (right) and R-138 radio station (in the middle)

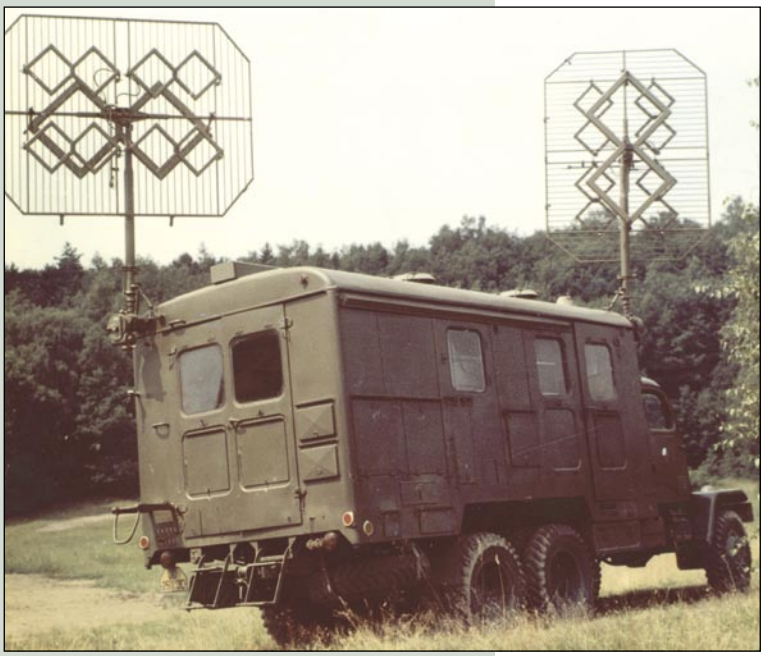
In conclusion of the seventieth, considerable attention was paid to the provision of communication for the combat and mobilisation readiness. It resulted in development of P-161 (ŠNUR) device announcing an alert and the system SVITAVA 75 notifying the career soldier of the alert. Production of 100 pieces of testing series of SVITAVA 75 took place in TESLA Orava factory in 1979. The plan set down to produce 20,000 pocket receivers, 150 encoders and 150 monitoring receivers till the year 1982. Total expenditures on SVITAVA 75 device made 57,129,000 CZK.

SVITAVA 75 summoning device

Since the year 1981, the divisional radio networks that were not equipped with R-3AT and R-4AT commander's radio stations were gradually replacing the RM-31My "Třinec" commander's radio stations for a new R-3S type mounted on the chassis of GAZ-66 vehicle or Praga V3S truck fitted with R-111, R-130 and RF-10 stations. In order to increase the quality of commander's communication it was decided to introduce 51pieces of new radio stations with staff workplaces of R-3AD type to the missile and artillery formations, 20 pieces of R-3AS radio stations to combined-arms divisions and



R-3S commander's radio station



RDM-12 radio-relay station

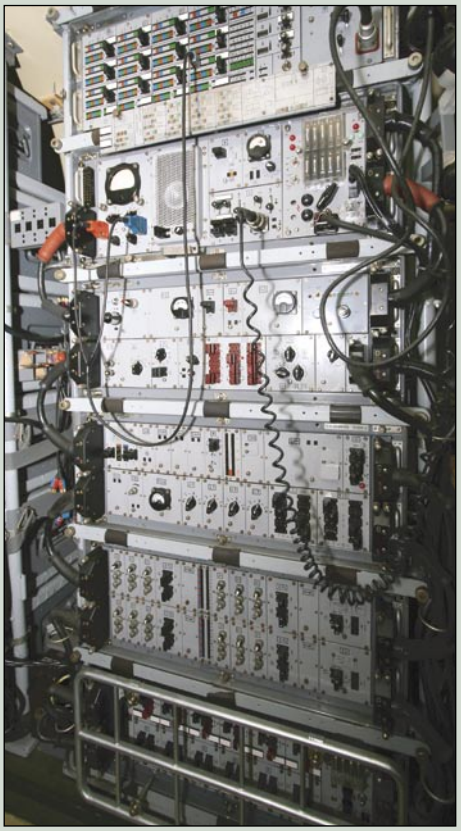
formations of army branches and 10 pieces of R-164 radio stations to the NAD missile formations.

Radio communication of the Air Force and NAD was modernized by replacing the R-109 radio stations for more powerful R-111 type. CSPA purchased 40 sets in the year1971 and 52 sets one year later. Simultaneously, the level of Air Force division – Air Force regiment was furnished with 22 R3A-L radio vans equipped with R-111, R-130, R-105 radio stations and a part of the sets was fitted with T-219 secrecy equipment. In 1971, the 7th NAD Army started operation of V1p system when it received 5 RPS LOTOS sets and 11 sets of R-122M tropospheric radio stations. In 1972, the international coordination communication of the 7th NAD Army was upgraded by delivering 2 sets of R-110M radio stations. In the years 1974 and 1975, the 7th NAD Army was refitted by 20 R-140 radio stations replacing the R-118 type. In 1975, one set of R-110M was delivered for data transmission of meteorological service by radio-teleprinter operation on the whole territory of Czechoslovakia. At the beginning of the seventieth, the above mentioned R-122 tropospheric radio station, representing the upgrading of the first type of the Soviet tropospheric stations, was the only means used for the communication by Tropospheric Forward Scatter in CSPA. Its use was planned till the year 1985. With regard to the frequency band and only one transmitted telephone channel, it didn't satisfy the needs of CSPA and thus, it was considerably backward in the sphere of tropospheric communication. Gradual introduction of tropospheric equipment, which satisfied the requirements put on the communication system, was the basic target in the period of the years 1976–1980. After the year 1980, the tropospheric communication equipment was planned for the level of front-army and army-division. The use of tropospheric stations should substantially increase the service life of communication system at the mentioned levels. It was expected that the sphere of radio and radio relay tropospheric equipment will have an increasing tendency and the Tropospheric Forward Scatter communication will become on of the main kinds of communication on operational and operational-tactical command level.

The seventieth meant an arrival of new equipment represented namely by the modern radio relay means of domestic design of RDM-6 and RDM-12 type. The existing RDS-66M and RDM-61 radio relay stations did not meet the contemporary requirements on the transmission of information, namely data transmission and the use of secrecy equipment. Tests of prototype of the RDM-6 radio relay set in Research Institute No. 060 were accomplished in November 1970. The RDM-6 and RDM-12 were produced by TESLA Hloubětín. A number of subcontractors from Czechoslovak and Hungarian industry participated in the production. Refitting of permanent network was made in the first half of the seventieth by installing the RDM-12S stations to individual posts of radio relay network with the capacity of 102 sets.

At the same time, the sets of NOT-PSU auxiliary communication centre were replaced for more modern NOT-PSU70. In case of NOT-PSU70 set it was a negative stand point of the Senior Hygienic Officer and in case of RDM-6, Minister of National Defence didn't issue the permission to use the station in two vehicles. Soviet ZIL-131 was selected for the installation of the set into one vehicle and since the year 1976, the set was gradually introduced into CSPA. At the end of the seventieth the refitting continued with an aim to ensure that the equipment used in the year 1980 would satisfy the requirements laid on the communication system. The RDM-61M radio station, expected to be replaced by the developed two and three channel RDM-1 and 3 stations, was an exception.

A stationary version of Soviet R-406M radio station was to replace the radio relay means of the territorial network. In 1976, the repletion by RDM-12 radio relay stations reached 100 % according to the tables of organisation and equipment (TOE). Replacement of the permanent R-400M radio relay stations for RDM-12 stations continued at 17 permanent radio relay stations and at the Radio Transmitting Centre No. 1. In 1977; the unification of radio relay means was achieved and thus, the connection of field radio relay means to the auxiliary communication centres of the permanent radio relay network became easier.



SNT 12 set of carrier telephony, a part of RDm-12 radio-relay station

RDM-6 radio station

Prototype of RDM-61M radio-relay station

RDM-61M radio-relay station

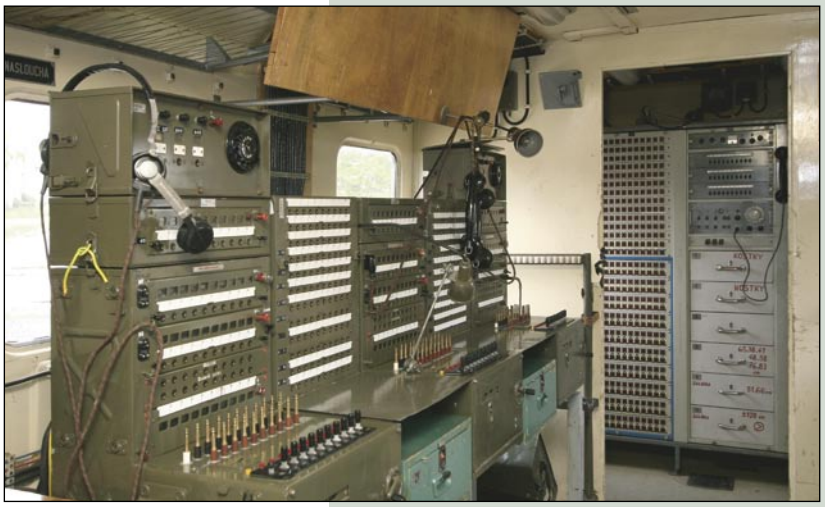
Tatra 138 semi-trailer truck with NS-10 semi-trailer

LTA-8 teleprinter

The situation in the area of communication centres and line communication was rather problematic with regard to the variety of types of the line equipment and its rapid ageing. For this reason, the simplification and acceleration of development of the communication centres by applying fully mechanised sets for development of cable lines, introduction of new teleprinter machine, teleprinting exchange, upgrading and automation of link switching represented the man task. Production of communication centre of the front was accomplished and the works on the project of reconstruction of the army communication centre continued. Attention was paid to the concept of development of the communication centres on tactical level with regard to the fact that the capacity of the existing SUD 1-1 and SUD 3 sets was not sufficient and namely, they did not enable signal security. Research and Testing Centre No. 063 solved the task marked as NÁVĚS (Semi-trailer) communication centre of the front in that period. In 1971, they executed control tests of individual components

K-20 cable set on Praga V3S automobile

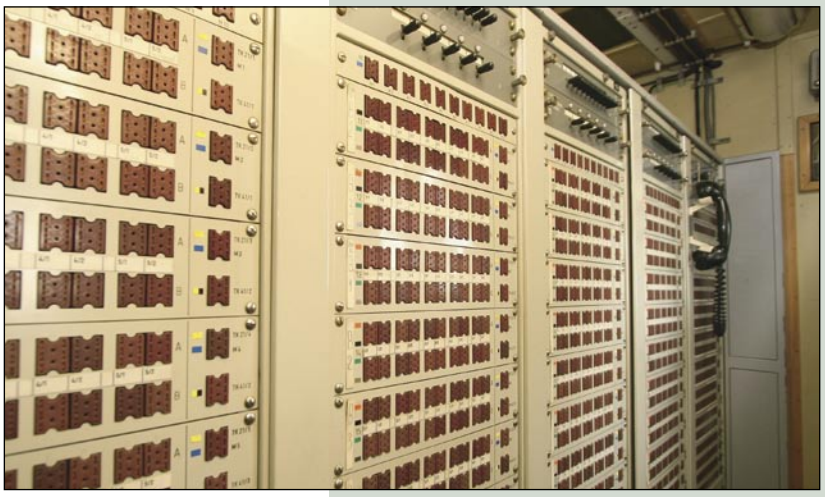
and the tests in the units were planned for the year 1972. The communication centre of the front (SUF) consisted of two sets (each for one installation of the front command post). The communication centre of the front consisted of a central distribution frame (UR), which performed the role of telephone and telegraph control distribution frame (KROZ) mounted on NS-10 semi-trailer traction driven by Tatra-138 truck; 200/200 automatic telephone exchange located in two NS-10 semi-trailers; automatic teleprinter exchange, having capacity of 100 subscribers housed in NS-10 semi-trailer; command-control post for the control of the radio and long-distance semi-trailer communication located in NS-10 semi-trailer, heavy current distribution frame and K 60-8, K20-10 and K-20M construction kits. Two sets of intermediate distribution frames (IDF) were included in the communication centre of the front in order to provide internal communication and to arrange the communication lines from the centre core; they were mounted on two Praga V3S vehicles. The communication centre of the front was replenished by four K-2 cable set and other vehicles serving for transportation of the subscriber's apparatus used for development of communication lines to distant subscribers. Altogether, the front communication centre disposed of five box-type semi-trailers of the centre core, one platform semi-trailer of distributing centre; two sets of IDF, seven Tatra-138 truck for K 60-8 and K20-10 sets; two vehicles for K 20-M set, two vehicles for K-12 set and two vehicles for the communication centre accessories. Thus, the front communication centre, without the signal security centre, consisted of 21 vehicles. Since January 1, 1973, the 2nd Command Post Support Battalion of the 5th Signal Regiment started training with new equipment of the front communication centre.



Central distribution frame of the army communication centre (UR-SUA)

The special communication centre consisting of special army communication centres (ZAS), which provided signal security of telephone and teleprinter channels, was a part of the front communication centre. A part of the teleprinter channels was concealed by ŠP cryptographic workplace equipped by ŠD-3 teleprinters. The workplaces of the front communication centre were of domestic Czechoslovak production and the workplaces of special communication centre were of Soviet production. The front communication centre, included in the armament of the 5th Signal Regiment, proved itself useful. Its introduction accelerated the operation and brought the centre a number of technical possibilities of switching (commutation) of channels including the secret telephone and teleprinter communication.

KROZ-200 long-distance telephone station (SDS SUA)



Reconstruction of army communication centre provided similar advantages. Svatopluk Hunče who suggested to options of the organisation of the army communication centre and the way of their gradual introduction in units was dealing with the reconstruction of the army communication centre within the Research Institute No. 060. Repair Plant No. 064, Hradec Králové, participated in the reconstruction by producing the main component of the centre core; AVIA Ivančice produced dispatching department, power room and cable truck. The army communication centre with new elements of KROZ-200, ATÚ-25, UR-200, DTÚ-90, K-20-A cable set, postal office and dispatching department passed the tests in units

Vehicles of the uniform communication centre of division

in the years 1974 and 1975. Since the following year, it was gradually introduced into armament. At the beginning of the year 1976, the last new elements of the army communication centre passed the military tests. It was namely KROZ-80 and DTÚ-40. In 1975, communication centre of the 1st and 4th Army command posts was furnished with P-243 (switch) telephone workplaces of special army communication and T-217 secrecy equipment.

Combined-arms divisions provided the communication of the command posts by SUD 1-1 sets of communication centres which were introduced into armament in 1963.

With regard to the necessity of the secret telephone and teleprinter communication, the communication centres on the level of division were equipped with P-240T and P-241T workplaces imported from the U.S.S.R., which passed the tests in Signal Battalion of the 20th Motor Rifle Division in the year 1976. In the following years, they were introduced into armament under the name - Divisional Unified Communication Centre JSU).

28 sets representing total costs of 134,310,000 CZK were imported from the U.S.S.R. till the year 1980. After the year 1988, another 42 sets were imported.

Together with the introduction of the secrecy equipment, the organisation of signal units changed and new category of Warrant Officers of special army communication (ZAS) appeared. Subscriber's distribution frames of signal security communication were developed separately from the others, including the independently switched (commutated) terminal elements. It was expected that after the year 1980, they develop a territorial network of special army communication up to the level of Regional Military Administrations and district Military Administrations. At the turn of the eightieth, the second phase of development of this communication was accomplished. Development of telephone communication concealment at combined-arms divisions, missile brigades, divisions and regiments of NAD and border guards command was solved. International coordination directions were modernised. The system of special army communication and the system of government communication were interconnected on the level of Ministry of National Defence and Federal Ministry of Interior. Upgrading of P-243T and P-242T telephone workplaces, earmarked for the front command post, provided the special army communication in the field communication system.

At the end of the seventieth, they established a 400 km – long front communication line with the connection lines to the command post of the two armies. This line link consisted of 18 NOT-75 sets, 48 sets of unmanned repeater stations, 24 mechanisation sets on Tatra-148

P-240 (ZAS) workplace with signal security telephone switchboard

Special micro-telephone for Border Guard

VXW 100 radio station

PR-21 radio station

vehicle and 24 accompanying vehicles of Tatra-148 type. In January 1979, they elaborated a military-technical and economical analysis of MKS-25 mechanised cable set and NOT-75 intended to provide development of the cable lines. The MKS-25 set together with NOT-75 workplaces provided a multi-channel cable communication on the level of the front and interconnected the combined-arms armies. A shortcoming of the set was that there was no suitable ploughing-in device for cables at disposal that time. In this way, concealment or camouflage of cables was considerably problematic during the development.

Data transmission, which was the responsibility of Signal Corps but it had no necessary system and organisation prerequisites in the CSPA, became new technical branch. Partial works that were to maintain contact with the world development in this sphere were proceeding. The task called PŘÍPRAVA *(Preparation)* became the most important project intended to establish foundations of a territorial system of automated command. With regard to the fact that the devices for secret data transmission did not exist in the armament of CSPA, they purchased foreign equipment of commercial design for the purpose of experimental testing. No military data transmission facilities were introduced within Warsaw Treaty Armies at the beginning of the seventieth. However, the Polish KACZIENEC device, which had no perspective because of the used basic components, could be taken as an exception. For this reason, in order to satisfy the needs of stationary network, in the years 1976 – 1980, they purchased a commercial device of Czechoslovak production, which passed through the confirmation test for the use in the field system of command, making use of stationary automatic data processing centres. The CSPA oriented its research, development and production of mobile medium-speed signal-secrecy data transmission facilities to coordination and cooperation with the other Warsaw Treaty Armies. It was to result in a field automated system of command to units (PASUV) the implementation of which was planned for the year 1980. Experience showed that the secret high-speed data transmission proved useful not only in data transmission for a computer but also for the transmission of commands, instructions and summary reports of operational importance. The field system of command introduced a field automatic computer of PŘÍPRAVA 2 type. Data transmission speed to this computer was 600 and 1,200 Bd per second. In conclusion of the seventieth, the operational command level, within its effort to introduce modern equipment for secured data transmission, purchased four mobile sets of PÁSKA device.

In the years 1981 – 1985, main attention of the Signal Corps in the sphere of development of communication systems was aimed at reliability, resistance and operation concealment. The communication systems were developed with an emphasis laid on the new conception of the organisation of command and mobile armoured command posts. The new conception of the field communication system of an operational high command represented an organisational and technical groupment of signal forces and means deployed in accordance with the accepted organisation of command.

The field communication system consisted of the following units and facilities:

a) Communication centres of command posts – command post (CP), alternate command post (ACP), logistics command post (LCP), mobile command post (MCP), air command post (ACP), or auxiliary command post (Aug. CP).
b) Communication network (supporting) – its basis consisted of supporting communication centres (SCC) and auxiliary communication centres (Aug. CC), usually interconnected by axes and lateral connections (rocades);
c) Directional connections – between the command posts of the given level and subordinate units;
d) Reserves of signal forces and means;
e) Institutions and means of logistic support (LS) (stores, workshops and repair shops).

Complete implementation of this kind of communication system required certain changes in the organisation and use of signal units, introduction

PŘÍPRAVA 2 field computer – general view

PŘÍPRAVA 2 computer – input and output device

PŘÍPRAVA 2 computer – magnetic tape units

PŘÍPRAVA 2 computer – punched tape reader

R-352 radio station for reconnaissance units

R-314 radio receiver

of new kinds of communication equipment (tropospheric stations, new cable sets) and certain change of structure of the communication centres. Rapid displacement of the command post communication centres (CP CC) represented the main problem. However, it was solved mostly by organisational measures only, i.e. dividing of the communication centres into mobile part and main part. New principle required to connect the command posts, alternate command post and logistic command post to the supporting communication centre (SCS) or auxiliary communication centre (Aug. CC) to prevent a loss of communication at the remaining command posts during the relocation of the command post.

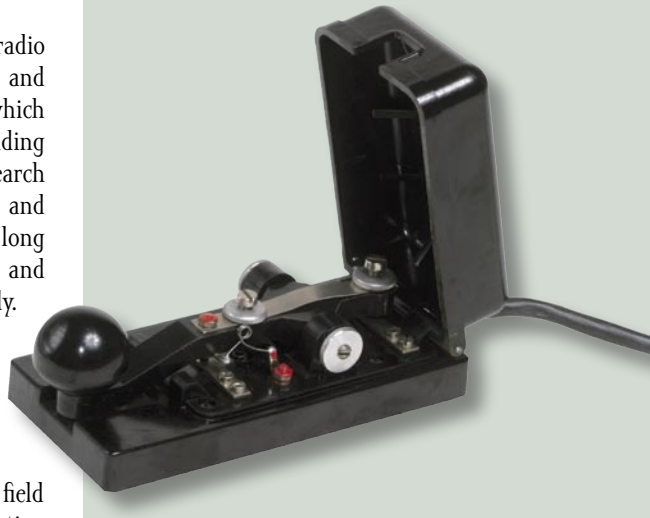
At the beginning of the eightieth, the introduction of new communication equipment into CSPA armament had to observe the new conception of the organisation of communication and the changes in the organisational structure of signal units.

The modernisation in the sphere of radio communication was aimed at new radio means having high operational reliability and minimum demands upon maintenance as well as reduction of size and weight, increase of sensitivity and substantially wider frequency bands. Simultaneously, there was a requirement to replace the radio equipment with expired service life, namely in case of RM-31M radio stations. It was suggested to introduce BEKRUT-2 station, produced by licence by domestic industry. Refitting of units with R-140 stations continued. It was planned that the following equipment will be imported in the years 1980–1985: 127 pieces of R-140 radio stations and 13 pieces of R-137 stations in armoured carriers for 10 combined-arms divisions and 5 pieces of R-137 stations in automobiles (two for each combined-arms army and one for the Eastern Military District). In case of UHF radio communication, they continued in the introducing the new R-137 UHF stations on the operational level and R-111 stations on tactical level. In order to increase the quality of radio communication, they started production of PRP-IV workplace which enabled remote control of two R-140 radio stations and modulation of other two working stations by separate reception directly from the PRP-IV located in the communication centre. However, introduction of PRP-IV workplaces solved the situation only partially. Individual armies and the front disposed of the amount of R-140 radio stations higher than the amount of the receivers in PRP. IV workplaces. Therefore, it was planned that this level will receive other PRP-VIII type of the workshop equipped with four R-155P receiver and four R-155U receivers which would make use of the number of channels of RDM-12 and solve the problem of the remote control of radio stations on the operational-tactical and operational levels. There was a need of 18 PRP-VIII workplaces in total.

Further development in the sphere of radio relay communication was connected with the development of some important elements of the line communication equipment, namely the individual multiplexes and carrier telephony and telegraphy for radio relay, tropospheric and cable communication means.

RDM-6 radio-relay station

R-140 radio station in ZIL-131 automobile



Transfer of working frequency to microwave bands was characteristic for the radio relay communication in that period. With regard to the fact that the RDM-12 and RDM-6 radio relay stations fell technologically within the period of the sixtieth which was characteristic by the combination of valve and transistor circuits, their upgrading was not planned but the covering of prospective needs forced the command to search for the solution in an innovation of the radio relay equipment. The RDM-12 and RDM-6 were the stations that were not technically worn away and had rather long service life estimated till the year 1990. Thanks to developed scientific-research and production base, the innovation process started in the years 1981–1985 already. Tesla Hloubětín factory produced a number of radio relay reportage and multi-circuit means for the operation in microwave band (MT-15, MT-16, MT-21, MT-22, 11AP32). Together with TESLA Pardubice and TESLA Strašnice factories there were necessary prerequisites for the solution of the task of development of special radio relay equipment corresponding with the needs of the Army.

In order to replace the existing radio relay equipment in the permanent and field communication network in future, the Signal Corps Directorate, GS, aimed its attention at two types of microwave equipment – the radio rely station with transmission rate of 480 or 2048 kb/s fitted with 8 or 32nf circuit multiplex with time division multiplexing of the transmission circuits according to unified technical and tactical regulations and – the radio station with transmission rate of 8192 kb/s fitted with 128nf circuit multiplex with time division multiplexing of transmission channels (PCM). The two stations should be technologically identical, their size and weight should be considerably smaller than the existing radio rely equipment. It was planned that about 2,500 sets of modernised type of RDM-61M and 587 sets of radio relay station fitted with 8nf circuit multiple will be introduced having the time of delivery – the year 1986. Moreover, 366 sets and radio relay station fitted with 32nf circuit multiplex and 134 sets of radio relay station with 128nf circuit multiplex with the time of delivery till the year 1987.

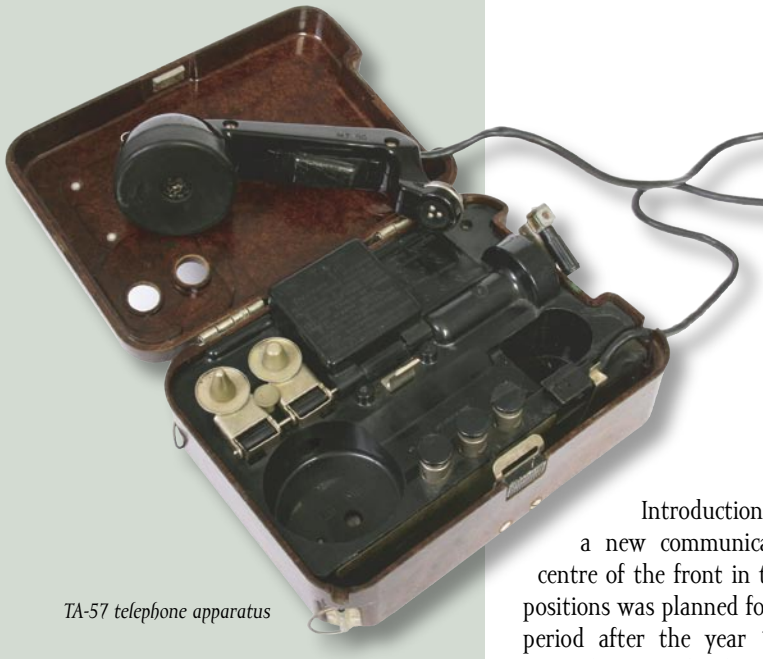
Tropospheric communication in CSPA was used within NAD (R-122M2) only. Wider use of the tropospheric means within the permanent and field communication network was planned on the basis of the 6th Session of Ministers of Defence of Warsaw Treaty Countries titled: "General Principles of Organisation of Command Posts and Communication Systems". With regard to the small amount of this equipment needed in our country, neither development nor production of these means was planned. It was planned that the needs of the Army will be covered by their import from the U.S.S.R.

In 1983, in order to provide a permanent tropospheric communication, they used a project of the U.S.S.R. MOD and started development of BARS system equipped with R-410 radio stations. The system provided communication for the Headquarters of Joint Armed Forces with the General Staff of CSPA, GS of Hungarian People's Army and the Main Command of National People's Army of GDR.

It was planned that the field tropospheric communication between the GS command centre and the front command post and between the front command post and the command posts of combined-arms armies will be provided by R-412F tropospheric station. Another R-412A tropospheric station was to provide the field tropospheric communication of NAD and Air Force and R-412B was to provide the tropospheric communication on operational-tactical command level between army and combined-arms division at the main line of attack. It was planned to import 35 sets in total.

The communication centres were to undergo further phase of development of the signal security telephone and teleprinter communication by means of partial upgrading and protection of individual elements of the front communication centre and army communication centre by its installation into VESTA facility.

R-412 tropospheric radio station



TA-57 telephone apparatus

T-100 teleprinter

Introduction of a new communication centre of the front in three positions was planned for the period after the year 1986 using domestic development and production or by purchase. Introduction of new communication centre of army in three positions was also planned in those years by importing a suitable type from the U.S.S.R.

The field communication system used mobile workplaces of special army communication (ZAS) equipped with T-217M, T-206 MT and PASKA secrecy equipment to ensure the signal security communication. The existing P-227T types were gradually replaced. The newer workplaces of P-222T type expected upgrading according to the rate of wear in phases by Z-206MT device to become P-238T workplaces.

The development in the area of data and information transmission was aimed at the introduction of automated system of command to units (PASUV). Till then, the data transmission was used only experimentally, using the equipment of western provenience, with an exception of NAD which was equipped with a data transmission device produced in GDR (FKG-T-50 and DFE-550). The experimental equipment of data transmission of THOMPSON, STC GH-210 and MARCONY type was used temporarily to gain technical and operational experience within the preparation for the development of the system. Further phase of the experiments was characterized by the effort to make use of the Czechoslovak made sets of ZPD-200 and partially also ZPD-1200 data transmission facilities. With regard to the fact that PÁSKA set satisfied the basic assumptions for data transmission, its producer. METRA Blansko made factory tests of four mobile sets and after the required adaptations they were handed over to the Communication Operational Centre of the Western Military District. They produced 14 stationary sets of the PÁSKA type for the needs of NAD Command. The stationary sets were allocated type designation of M4T256; data transmission terminal – M4T257 and secrecy equipment – PAŠA-M M4T258. Further 38 sets of PÁSKA device were earmarked for the sets of small transportable MOMI computers with the PAŠA secrecy equipment. In total, 38 sets were delivered in the years 1980 – 1982.

Transmitter of R-161 radio station

R-326 receiver from the set of R-161 radio station

The sphere of permanent military telephone and teleprinter network planned to replace the system of subscriber telephone exchanges (UTU) of the first generation for the UK-111P and UK-112P systems. The generation of these exchanges was to provide fully automated operation with substantial reduction of the number of operators. It was planned that the replacement of the old systems of the subscriber telephone exchanges will be executed in 65 garrisons having capacity of 28,770 subscriber lines. The replacement continued till the year 1990. The teleprinter network accomplished the development of Automatic Teleprinting Exchange (ATE) Banská Bystrica and ATE Bratislava and the independent systems of voice frequency telegraphy (VFT) in selected garrisons. In this way, they managed to extend the whole teleprinter network to final capacity of 1,640 lines. Replacement of the old RFT terminal teleprinter equipment for modern T-100 teleprinters was made together with the extension of the teleprinter network. Replacement of 500 teleprinters was prepared for the year 1981 and the remaining 1,140 pieces were to be replaced till the end of 1985. Moreover, based on the

growing number of requirements, the number of M-125M (FIALKA) secrecy equipment was increasing as well.

Second half of the eightieth was accompanied by a number of changes in the organisational structure and armament of the troops, which logically resulted in the arrangement of the command system with an emphasis, laid on mechanisation and automation of individual processes. Correct function of the automated command and control system could not do without the communication system which was dependent on the communication means and communication network that realised the information transmission. The field communication network consisting of individual systems of radio, radio relay, tropospheric, space and line communication created a basis of the communication system on the operational level. It was planned that the automatic switching (commutation) and the use of different kinds of communication, will by gradually introduced on the bases of unified channels for digital communication and integrated secrecy equipment. They also planned a satellite communication on the basis of KRISTAL station, new R-161p radio stations and new set of secrecy equipment with high cryptographic resistance of INTERIER type. It was expected that the tropospheric communication will be extended from the level of army to combined-arms divisions.

The sphere of radio communication laid the emphasis on the transfer to digital forms of information transmission, increase of the amount and speed of their handing over and provision of data transmission. The tactical level expected an increase of the number of command post vehicles on the basis of armoured carriers with individual technical equipment, including the radio stations. The operational level continued in putting the old radio equipment with the expired service life out of operation and its replacement by powerful medium-range radio equipment on the basis of an off-road box-shaped automobile. The U.S.S.R. produced a number of new radio station of POISK, BERKUT, MIKRON (TANGO) and ABZAC type, which already made use of prospective component base, including higher-generation integrated circuits.

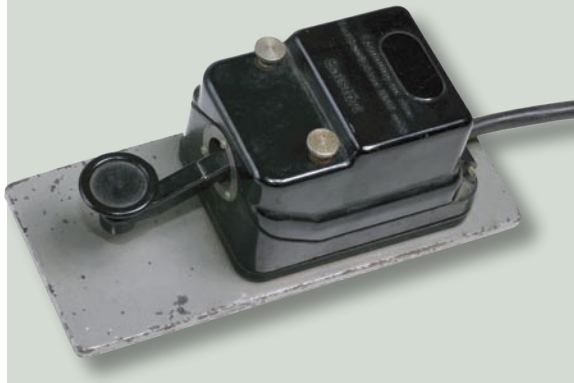
The radio relay communication sphere started development of new station under the type designation of TEMPO which enabled digital transmission of information in high transmission rates. Modular design of the station enabled its use for 8, 32, 64 or 128 channels. Since the year 1990 it was to replace the existing RDM-12 and RDM-6 types. At the same time, the oldest Soviet R.404 radio stations were replaced by the upgraded R-404 types with SOSNA mast.

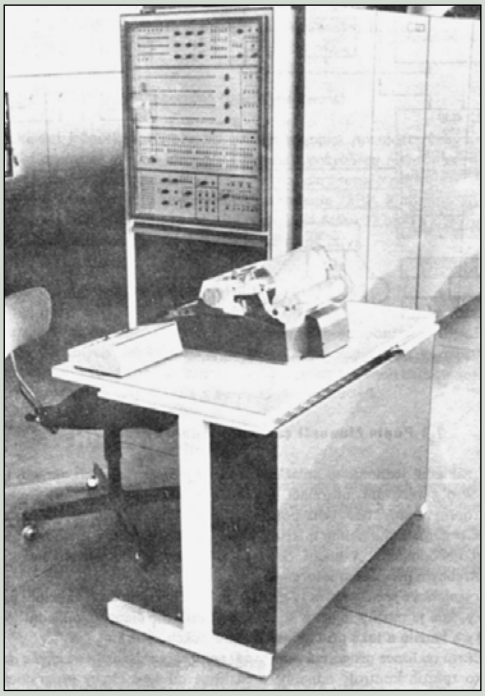
The stationary tropospheric communication used R-410M stations and the field communication system – R-412 tropospheric stations. This type existed in three options. The six-channel R-412F and R-412A stations were mounted on trucks and the three-channel R-412B stations – in armoured carriers. In the second half of the eightieth, space radio stations were introduced in the armament; R-440-U (central) – on the level of the front and R-440-O (terminal) on the level of army.

In the period of the years 1985–1989, main attention in the branch of communication centres was paid to the accomplishment of upgrading of the operational-tactical command level by a unified P-240M and P-241M communication centres. The tactical level of command continued in replacing the SUD 1-1(2) communication centre for P-240T and P-241T. Moreover, they solved the upgrading of communication centres of combined-arms regimentsby creating a set with an exchange of higher capacity and its installation into a vehicle or armoured carrier,

The existing data transmission equipment kept lagging behind the requirement put on modern ways of command and control. In the years 1978–1985, the data transmission systems represented by M4T256, PÁSKA, MODAST equipment and non-secure data transmission by means of ZPD-200 and ZPD-1200 device were gradually improved by means of developing the secure data transmission by MODAST means. It was planned that the development of national integrated network on the basis of modernised MODAST means, making use of the elements of ZOBRAZENÍ system, will last till the year 2000, till the introduction of a coalition system of data transmission.

In 1985, the development of the sets of ZPD-4800TRs and ZPD-Trp types was accomplished and their testing operation took place at the 1st Communication Centre, Příbram, 3rd Communication Centre, Tábor and 4th Communication Centre, Písek.





EC-1030 computer

Jacket, Model 63,
of the 2nd year student
of Military Secondary Technical School

MOMI-2 computer in an insulated container on Tatra 148 automobile

In 1969, they established an independent Mechanisation and Automation Division, GS, which was included into Command and Science Development Directorate, GS, under new name of Command Automation Division in 1989. The punch-card machines were gradually replaced and modernised by stationary computers of EPOS, MINSK, ZPA-600, JSEP, SMEP etc. types. Since the year 1970, the Army received EPOS-2 computers produced in a mobile option mounted on several trucks with special superstructure which were intended for the work of headquarters in field conditions. Usefulness of the data procession by machine became more and more evident in the peacetime needs of the Army. It holds namely for the administrative work concerning mobilisation, organisation, planning, personnel matters, finance etc. Modern computers of MINSK-22 and MINSK-32 were gradually introduced into Army. Medium-power computer (of so called third-and-half generation) became a basic type of the computer system in the command and control system in peacetime conditions. It was Soviet EC-1030 (33) type which was used namely for the processing of information on the highest level but it was soon replaced by EC-1045 (46) computers. The lower command levels used mini-computers of domestic production of ADT-4300, 4500 and 4700 types and, in the second half of the eightieth, the computers of SMEP series, e.g. SM 4-20, SM 50/50 and SM 52/52.

MOMI-2 computer – operator workplace

The data preparation means used in the Army made use of the data preparation machines on paper media (punch cards and punch tapes) of ARITMA 2030, SOEMTRON, CONSUL and ASCOTA types. These means were gradually replaced by new devices for the preparation and pre-processing of data on magnetic media, e.g. CONSUL 271x and devices for a cooperative preparation of data on magnetic tape built on the basis of EC-1010-Videoplex and SM 4-20 computers. In the second half of the eightieth they introduced 8-bit microcomputers which radically changed the existing approach to data processing i.e. transfer from batch mode to decentralized data processing and direct bringing of the computing technique closer to the users. This process was supported by development of local terminal networks of JSEP medium computers and ADT and SMEP minicomputers as well as the starting process of remote data processing and their transmission. This, rather massive employment of micro-computers happened in case of TEXT01 and text-01.M1 Division computers which were used within individual subsystems of AIS CSPA for rationalisation of administration works, solution of partial calculation tasks and preparation of pre-processed data.

MOMI-2 computer – data transmission security apparatus

Transportable computers of domestic design intended for the command of troops in field conditions represent an independent chapter in the development of a technical base of automation. This equipment was installed into commander's vehicles and isothermal transport containers. In the seventieth, beside the transportable computer set of PŘÍPRAVA II type on the operational level, there were CONSUL-261 and 266 mobile computing automatic devices providing processing of tactical, technical and logistic tasks at combined-arms, air force and field engineer divisions. In the eightieth, they introduced that time successful series of small transportable computer of MOMI type constructed on the basis of ADT-4300 and 4500 minicomputers. The basic and application program equipment (operational-tactical tasks and combat formalised documents) of the sets of MOMI-2 and MOMI-3 transportable computers enabled development of terminal networks at field movable command post and secure data transmission between individual command posts. In the second half of the eightieth, the technical base of the tactical level was replenished and replaced by POTAS 8-bit military microcomputers which satisfied the requirements put upon climatic and mechanical resistance and represented a cutting edge of the field automating technologies within the Warsaw Treaty Armies.

POTAS computer, ready-to-operate

SEVENTEEN YEARS OF NEW PERSPECTIVES – THE YEARS 1990–2007

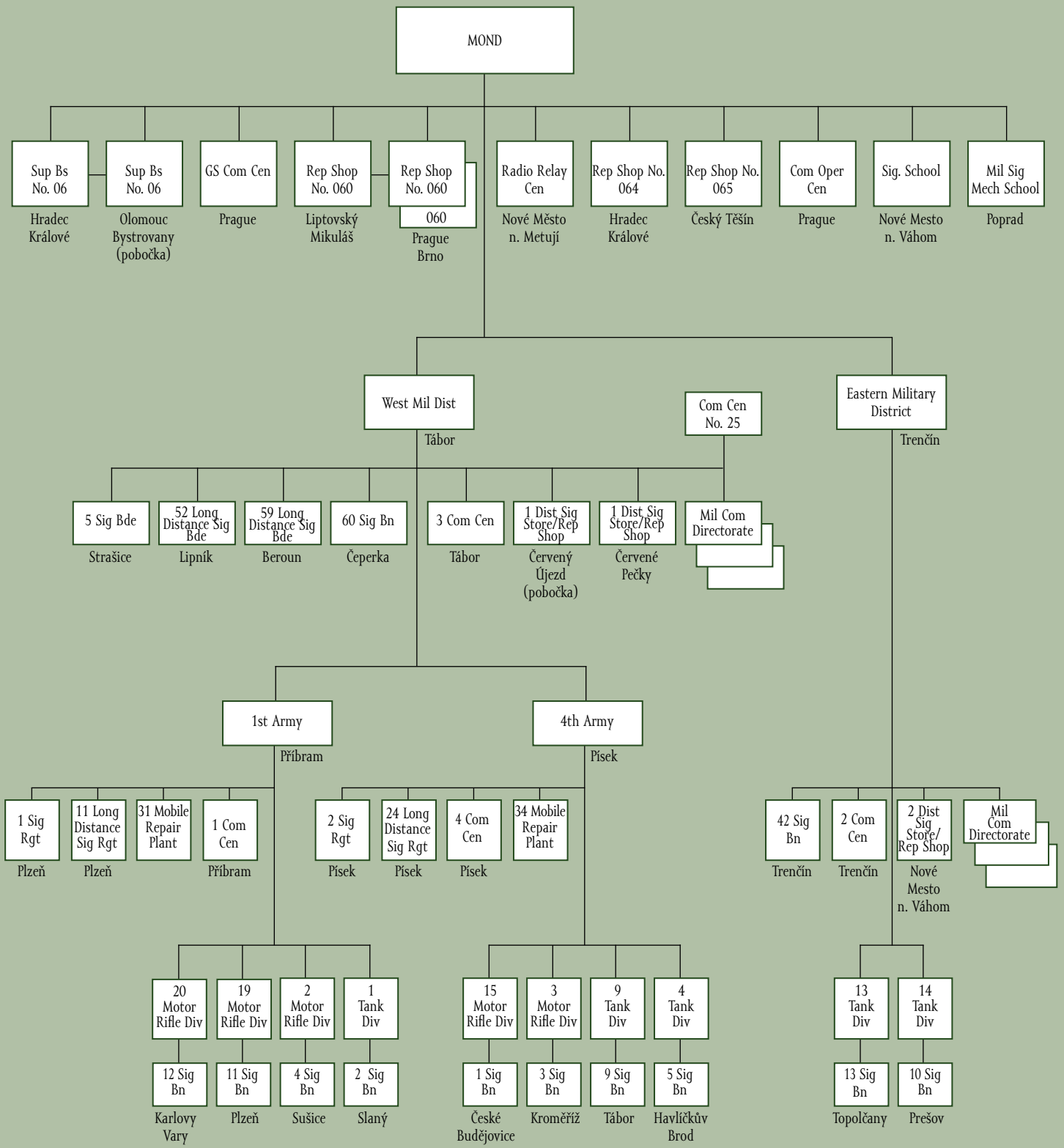
The end of the partition of the world has markedly manifested itself even in the new position of Czechoslovakia. The change of political system at the turn of the years 1989 and 1990 together with the orientation of the Czech and Slovak Federative Republic towards integration into European structures and NATO radically affected the organisational development of the Army. Development of new political arrangement resulted in the reform of the Army accompanied by a number of organisation and location changes. Organisation and location of signal units was also changed as it was copying the changes in the whole Army. As a result of legislative changes (amendment to National Defence Act resulted in shortening the compulsory basic military service from 24 to 18 months) and massive retirement of career soldiers. The actual number of the Army members, as of October 1, 1990, dropped to 150 thousands persons. Simultaneously, the governments signed an agreement concerning withdrawal of Soviet troops from the territory of Czechoslovakia till July 30, 1991, and Warsaw Treaty was cancelled on July 1, 1991. The Agreement concerning CFE (Conventional Forces in Europe) approved in Paris in November 1991 prescribed only 140,000 persons, 1,435 battle tanks, 2,050 armoured combat vehicles, 1,150 artillery systems, 345 combat aircraft and 75 helicopters since November 1995. Relocation changes were necessitated even due to the existing concentration of Czechoslovak troops on the boundary with Federal Republic of Germany. At the turn of the years 1991 and 1992, the existing Western and Eastern Military Districts were cancelled and new Military Command West in Tábor and Military

RF-13 radio station developed at the beginning of ninetieth

R-140 radio station

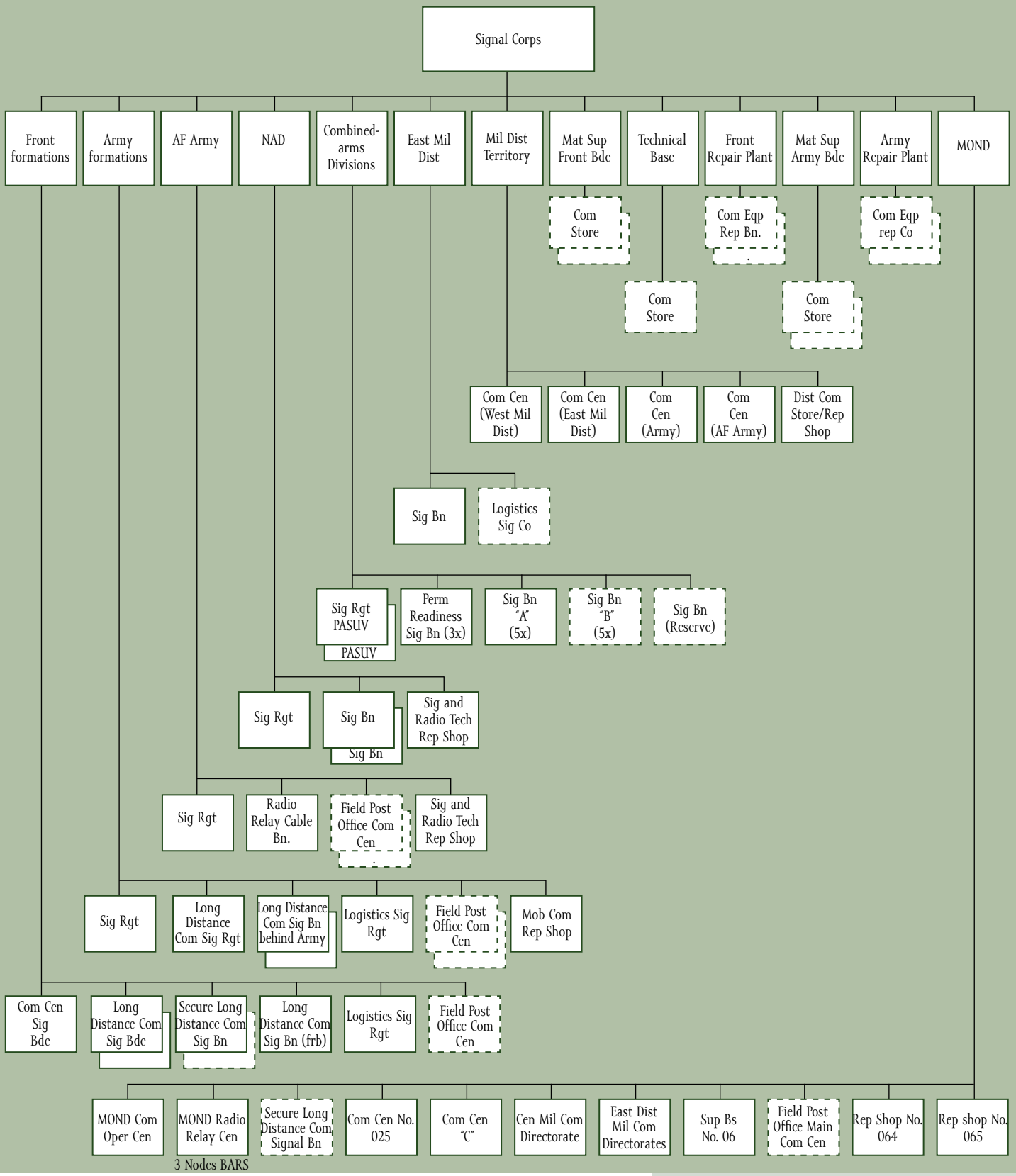
Command East in Trenčín were established by January 1, 1992. On March 1, 1992, a new Military Command Centre was formed in Olomouc. This organisation respected the balanced deployment of troops on the whole territory of Czechoslovakia.

Organisation chart of Signal Corps as of December 31, 1989



In 1990, Chief of Signal Corps submitted a draft of organisation of the Signal Corps for the provision of communication on the territory and organisation of communication in field communication systems as follows:

Draft of organisational changes of Signal Corps as of December 31, 1990



Colonel
Oldřich Dohnal
(*1940)

A graduate from Artillery School and Signal Corps Officers Conversion Course. In 1973, Oldřich Dohnal graduated from Antonín Zápotocký´s Military Academy (AZ MA) in Brno. He served in the positions of Signal Officer of 321st Heavy Artillery Brigade, Chief Senior Officer of Signal Section of the 1st Army, Chief of Operation Section, Deputy Chief of Signal Corps of Western Military District and Deputy Chief of Signal Corps of Czechoslovak People's Army (CSPA) GS. Since July 1990 till October 1993 he held appointment of the Chief of Signal Corps of Czechoslovak Army (Czech Armed Forces) GS.

In July 1990, Colonel Oldřich Dohnal was appointed Chief of Signal Corps of the General Staff.

A wave of organisation and location changes in the signal formations started on October 31, 1990 by transferring the 5th Signal Battalion of Fatra, Havličkův Brod, to the 5th Store of Signal Material. Exactly one year later, on October 31, 1991, the 11th Signal Battalion, Plzeň, was disbanded and a number of further changes took place at the same time.

The following units and facilities were reorganised:

- 2nd Signal Regiment Písek was reorganised to 1st Signal Regiment;
- 59th Signal Brigade of Long Distance Communications, Beroun – to 1st Long Distance Communication Signal Regiment;
- 52nd Signal Brigade of Long Distance Communications, Lipník nad Bečvou – to 2nd Signal Brigade;
- 1st District Signal Store and Repair Shop was reorganised to 1st Signal Repair Shop and relocated from Červené Pečky to Lázně Bohdaneč;
- 31st Mobile Signal Repair Shop – to 2nd Signal Repair Shop and Store and relocated from Plzeň to Lipník nad Bečvou;
- 2nd District Signal Store and Repair Shop, Nové Mesto nad Váhom – to 3rd Signal Repair Shop and Store;
- 5th Signal Material Store, Havlíčkův Brod – to 4th Signal Battalion.

The 2nd Communication Centre, Olomouc, was newly established.

The following units and facilities changed their numbering:

- 3rd Communication Centre, Tábor to 1st Communication Centre;
- 2nd Communication Centre, Tábor to 3rd Communication Centre;
- 2nd Signal Battalion, Slaný to 1st Signal Battalion;
- 4th Signal Battalion, Sušice to 1st Signal Battalion;
- 10th Signal Battalion, Prešov to 14th Signal Battalion;
- 1st Signal Battalion, České Budějovice to 15th Signal Battalion;
- 12th Signal Battalion, Karlový Vary to 20th Signal Battalion.

In the following month, by November 30, 1991, the 11th Signal Regiment of Long Distance Communication, Plzeň and 24th Signal Regiment of Long Distance Communication, Písek, were disbanded. The organisation changes continued even in the next year. Immediately

ATUE-100 automatic electronic telephone exchange

MB panel of ATUE-100 automatic electronic telephone exchange

on January 1, 1992, they cancelled the branch of the 1st Communication Base and Store at Lázně Bohdaneč in Červený Újezd-Hájek and a number of other changes were made at the same time.

The following units and facilities were reorganised:
- 1st Signal Regiment, Plzeň was reorganised to 3rd Signal Brigade;
- 5th Signal Brigade, Strašice – to 1st Signal Specialists' Training Centre;
- Communication Operational Centre, Prague, was augmented by Signal Battalion, Unhošť.

The following units and facilities were newly established:
- Development and Technological Informatization Centre, Prague;
- 5th Communication Centre, Stará Boleslav.

The following units changed their assignment within the organisational changes:
- 5th Signal Brigade was assigned to MOND (being subordinate to the Signal Corps Directorate, GS);
- 1st Signal Regiment – to Military District "West";
- 1st Signal Regiment of Long Distance Communication – to Military District "West";
- 2nd Signal Brigade – to Military District "Centre";
- 3rd Signal Brigade – to Military District "East".

By March 1, 1992, the following units and facilities were
a) disbanded:
- 60th Signal Battalion Unhošť-Čeperka;
- 1st Communication Centre, Příbram;
- 4th Communication Centre, Písek;
- 34th Mobile Communication Repair Shop, Písek;

RDM radio relay station

b)relocated:

- 3rd Signal Brigade was relocated from Plzeň to Ružomberok (on October 20, 1922, it was awarded a honorary name "of Ružomberok";
- 9th Signal Battalion - from Tábor to Písek.

On October 20, 1922, shortly before division of the Republic, the subordination of signal units and facilities was as follows:

The following units and facilities remained directly subordinate to the Signal Corps Directorate:

- Central Military Signal Directorate, Prague;
- Communication Operational Centre, Prague;
- Radio Rely Centre, Nové Město nad Metují;
- Special Communication Centres;
- Supply Base No. 06, Hradec Králové;
- Military Repair Shop No. 064, Hradec Králové;
- Military Repair Shop No. 65, Český Těšín.

The following units and facilities remained subordinate to the Military Command "West":

- 1st Signal Regiment, Písek;
- 1st Signal Regiment of Long Distance Communications, Beroun;
- 1st Signal Specialist's Training Centre, Strašice.

The 2nd Signal Brigade, Lipník nad Bečvou, **remained in the subordination of Military Command "Centre".**

The 3rd Signal Brigade, Ružomberok, **remained in subordination of Military Command "East".**

The 17th Signal Brigade, Klecany, **remained in subordination of Air Force and AD Command.**

The 10th Signal Regiment, Pardubice, **remained in subordination of the Command of the 1st Combined Air Force Corps.**

A number of negotiations of the political representatives of the two states of the Czech and Slovak Federative Republic resulted in the decision to terminate its existence and to establish its succession states – the Czech Republic and Slovak Republic. In connection with the decay of CSFR, its Army terminated its activity by December 31, 1922 as well. Armed Forces of the Czech Republic (ACR) and Armed Forces of Slovak Republic (ASR) became its successors. On December 31, 1922, within the division of the CSFR, the 3rd Signal Brigade, Ružomberok, and one third of all the mobile signal communication equipment and other communication material was handed over to the Slovak Armed Forces. Final property settlement between ACR and ASR was accomplished as of October 31, 1933.
The newly established Czech Armed Forces were facing an extensive transformation resulting from radical reduction of the peacetime strength of the Armed Forces, balanced deployment of the units on the territory of the Republic and due to coming near to NATO structures. For this reason, a number of changes were made in the course of the year 1993.
Colonel Jiří Rýc was appointed the Chief of Signal Corps of the General Staff of ACR.

On April 1, 1993, the 1st Signal Specialists' Training Centre, Strašice, established a Reserve Officer's School. On July 1, 1993, 10th Repair Shop of Communication Equipment and Radio Technical Support, Olomouc, was reorganised to 4th Repair Base of Communication Equipment and Radio Technical Support, Olomouc, with its branch it the garrison of Stará Boleslav. At the same time, the organisational strength of a number of signal units was reduced by 225 persons in peacetime organisation and by 866 in wartime organisation.

In 1993, the command of operational level was reorganised. The Air Force and Air Defence Command together with the 1st Combined Air Force Corps were cancelled by December 31, 1993, and Command of 3rd Tactical Air Force, Command of 4th AD Corps and Logistics Command were established by November 1, 1993. On the basis of these changes, the Signal Corps reorganised the following units by December 31, 1993:

- 17th Signal Brigade, Klecany – to 4th Signal Brigade, subordinated to the 4th AD Corps;
- 10th Signal Regiment, Pardubice – to 3rd Signal Regiment, subordinated to 3rd Tactical Air Force Corps and relocated to Hradec Králové;
- 20th Signal Battalion, Brno – to 42nd Signal Battalion, subordinated to 4th Signal Brigade;
- 23rd Signal Battalion, Žatec – to 43rd Signal Battalion, subordinated to 4th Signal Brigade;
- Central Military Communication Directorate of GS – to new organisational structure.

Military Command "West" and "Centre" were cancelled and new Command of the 1st Army Corps and Command of the 2nd Army Corps were established by April 1, 1994. Even this change was reflected in the organisation of the Signal Corps. The following units were reorganised the same day:

- 1st Signal Regiment, Písek – to 1st Signal Brigade, subordinated to the 1st Army Corps;
- 2nd Signal Brigade, Lipník nad Bečvou – to the new organisational structure, subordinated to the 2nd Army Corps;
- 1st Signal Regiment of Long Distance Communications, Beroun – to 61st Signal Brigade, subordinated to the General Staff.
- Communication Operational Centre, Prague – to 60th Signal Brigade, subordinated to the General Staff;
- 1st Communication Centre, Tábor – to the new organisational structure, subordinated to the 1st Army Corps;
- 2nd Communication Centre, Olomouc – to the new organisational structure, subordinated to the 2nd Army Corps;

Sleeve insignia of the members of Signal Corps used in UNPROFOR peacekeeping missions in former Yugoslavia in 1992–1995

Colonel GS Jiří Rýc (*1945)

In the year 1965, Jiří Rýc graduated from Signal School in Nové Mesto nad Váhom. In 1976, he accomplished his study of military communication engineering at the AZ MA, Brno. He served in the positions of Signal Regiment Chief of Staff, Signal Regiment Commander, Deputy Chief of Signal Corps and Chief of Signal Corps of Army and Deputy Chief of Signal Corps of Western Military District. He studied at General Staff Academy in Moscow and accomplished the study at Military Academy in Brno in 1992. In the years 1993-1996 he held appointment of the Chief of Signal Corps of Czech Armed Forces GS.

Lt. General
Vlastimil Picek
(*1956)

In 1975, Vlastimil Picek graduated from Military Secondary School in Nové Mesto nad Váhom. In 1982, he accomplished his study of military communication engineering at AZ MA in Brno. He served in the positions of the Chief of Operation Group of AF and NAD Command Signal Section, Chief of Signal Corps of the 4th NAD Corps Command, Chief of Section of the Signal Corps Department of the Czech Armed Forces GS and Deputy Chief of Signal Corps of the Czech Armed Forces GS. In 1997, he passed higher academic course of the General Staff at Military Academy in Brno. In the years from 1996 to 1997 and from 2000 to 2001, he was appointed the Chief of Signal Corps of the Czech Armed Forces GS. In the intermediate period, he was Chief of Department of Command and Control Operational-Tactical Systems of the Czech Armed Forces GS. In the year from 2001 to 2003 he held appointment of the Chief of Command and Control Division of the Czech Armed Forces GS. In May 2003, he was appointed Chief of Military Office of the President of the Republic. Since March 2007, he is Chief of the General Staff of the Czech Armed Forces.

At the same time, the 50th Main Centre of Field Post Office Communication, Unhošť, was renamed to 62nd Main Centre of Field Post Office Communication and relocated to Prague. The 1st Signal Specialist's Training Centre, Strašice, and Radio Relay Centre, Nové Město nad Metují were disbanded.

A number of other organisational changes were made in the course of the year 1994. The Military Communication Directorate "West" was renamed to Military Communication Directorate, Bohemia, and the Military Communication Directorate "Centre" was renamed to Military Communication Directorate, Moravia, by May 1, 1994. On July 1, 1994, they established 4th Signal Battalion, Havlíčkův Brod, subordinated to the 4th Rapid Deployment Brigade and, at the same time, they cancelled the 15th Signal Battalion, České Budějovice, 19th Signal Battalion, Slaný, and 18th Signal Battalion Havlíčkův Brod. In the peacetime organisation, they cancelled the 1st Signal Battalion, Slaný, and 9th Signal Battalion, Písek. The Communication Centre, Olomouc was re-subordinated from the General Staff to the 2nd Army Corps. At the very end of the year, on December 31, 1994, they disbanded the 3rd Signal Battalion, Kroměříž and Communication Centre, Jičín. Simultaneously, the 3rd Signal Battalion, Kroměříž was reorganised to 7th Signal Battalion, subordinated to the 7th Mechanised Brigade, 4th Signal Battalion, Havlíčkův Brod – to 6th Signal Battalion, subordinated to the 6th Mechanised Brigade and, at the same time, relocated to Brno, an 20th Signal Battalion, Karlovy Vary, was reorganised to 3rd Signal Battalion, subordinated to the 3rd Mechanized Brigade.
The next two years brought only minor changes in the organisation. An ALCATEL Training Centre was established within the Central Communication Directorate, Prague, by October 1, 1995. One year later, on October 1, 1996, the Military Communication Directorates, Bohemia, and the Military Communication Directorates, Moravia, were disbanded. Central Military Communication Directorate, Prague, subordinated to the General Staff, became their legal successor.
At the turn of the years 1996 and 1997, Colonel Vlastimil Picek was appointed the Chief of Signal Corps, GS. In 1997, he was replaced by Maj. General Josef Dufek.

By November 1, 1997, the Army Corps were cancelled and replaced by newly established Land Forces Command, Territorial Defence Command, Air Force Command and Logistics Command. Reduction of the strength and cancelling of combined-arms divisions was copied by the signal formations and units. A number of the units was cancelled, transferred to wartime organisation or relocated. The changes in the organisational structure of the ACR required corresponding arrangement of he organisational structures of signal formations and units. The following signal units were reorganised by April 1, 1997: 60th Signal Brigade, Prague; 61st Signal Brigade, Beroun; Central Military Communication Directorate, Prague, Development and Technological Informatization Centre, Prague and Cipher Service Centre, Prague. At the same time, they were transferred to subordination of newly established Deputy Chief of General Staff for Command and Control – Chief of the ACR Signal Corps.

The following units were reorganised by July 1, 1997:

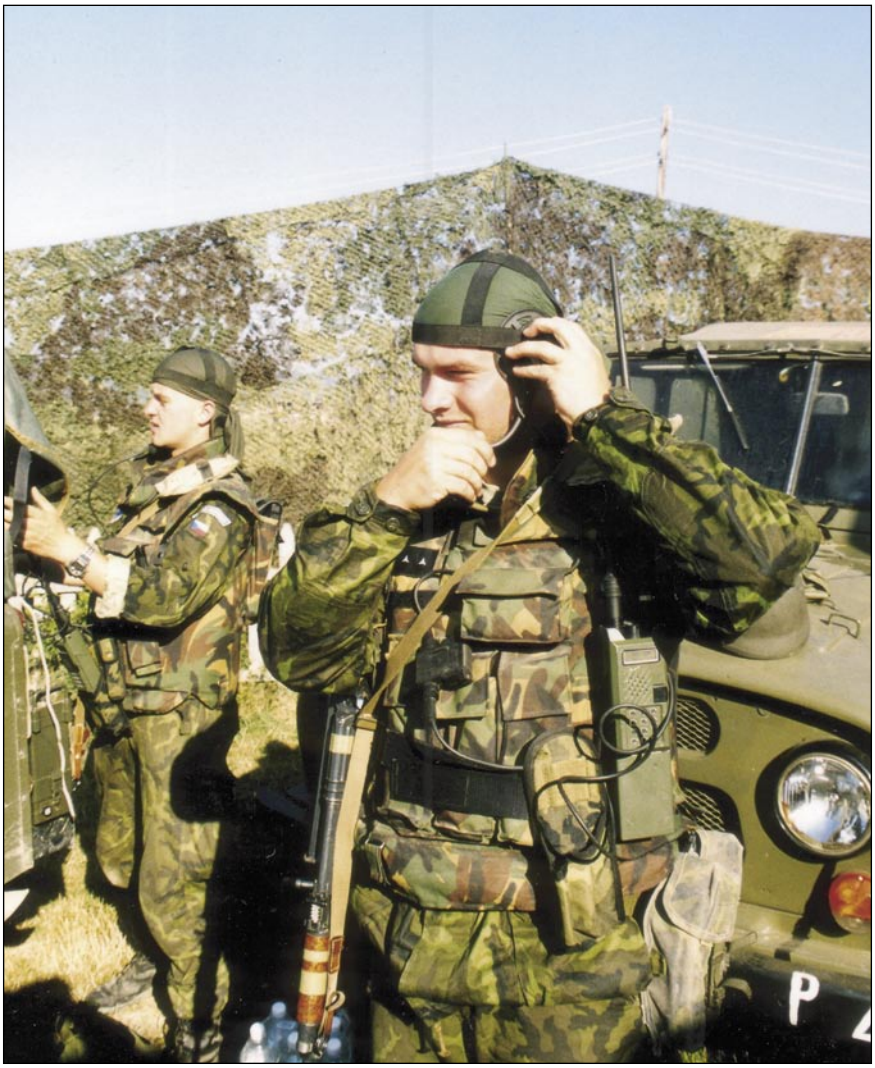
- 1st Signal Brigade, Písek, was reorganised to 2nd Signal Brigade and transferred to subordination of the Commander of Territorial Defence Troops by November 1, 1997;
- 1st Communication Centre, Tábor, was renamed to 21st Communication Centre and transferred to subordination of the Commander of the 2nd Signal Brigade by November 1, 1997;

Sleeve insignia of the 4th Signal Battalion, Havlíčkův Brod

Sleeve insignia of the 7th Signal Battalion, Kroměříž

- 2nd Signal Brigade, Lipník nad Bečvou – to 1st Signal Brigade and transferred to subordination of the commander of Land Forces by November 1, 1997;
- 2nd Communication Centre, Olomouc, was renamed to 22nd Communication Centre and transferred to subordination of the Commander of the 2nd Signal Brigade by November 1, 1997;
- 4th Signal Brigade, Klecany and, at the same time, it was transferred to subordination of the Air Force Commander;
- 2nd Signal Battalion, Sušice, and, at the same time, it was relocated to Písek;
- 4th Signal Battalion, Havlíčkův Brod;
- 7th Signal Battalion, Kroměříž.

The 3rd Signal Battalion, Karlovy Vary and 6th Signal Battalion, Brno, were disbanded by the same day.



Headset of the RF-series radio station

Sleeve insignia of the 2nd Signal Battalion, Písek

Sleeve insignia of the 3rd Signal Battalion, Velká Hleďsebe

Maj. General Josef Dufek (*1947)

A graduate of Technical School in Liptovský Mikuláš (specialisation: computers). In 1975, Josef Dufek accomplished his study at the AZ MA in Brno; specialisation: electrical engineering, Air Defence Missile Troops – National Air Defence (NAD). He held appointments of Chief of Staff of NAD Division, Commander of NAD Division and Commander of NAD Corps of the Czech Armed Forces GS. He studied at the General Staff Academy in Moscow and accomplished his study at the Military Academy, Brno, in 1992. In the years from 1997 to 1999 he held appointment of the Chief of Signal Corps of the Czech Armed Forces GS.

Tests of R-7p radio set

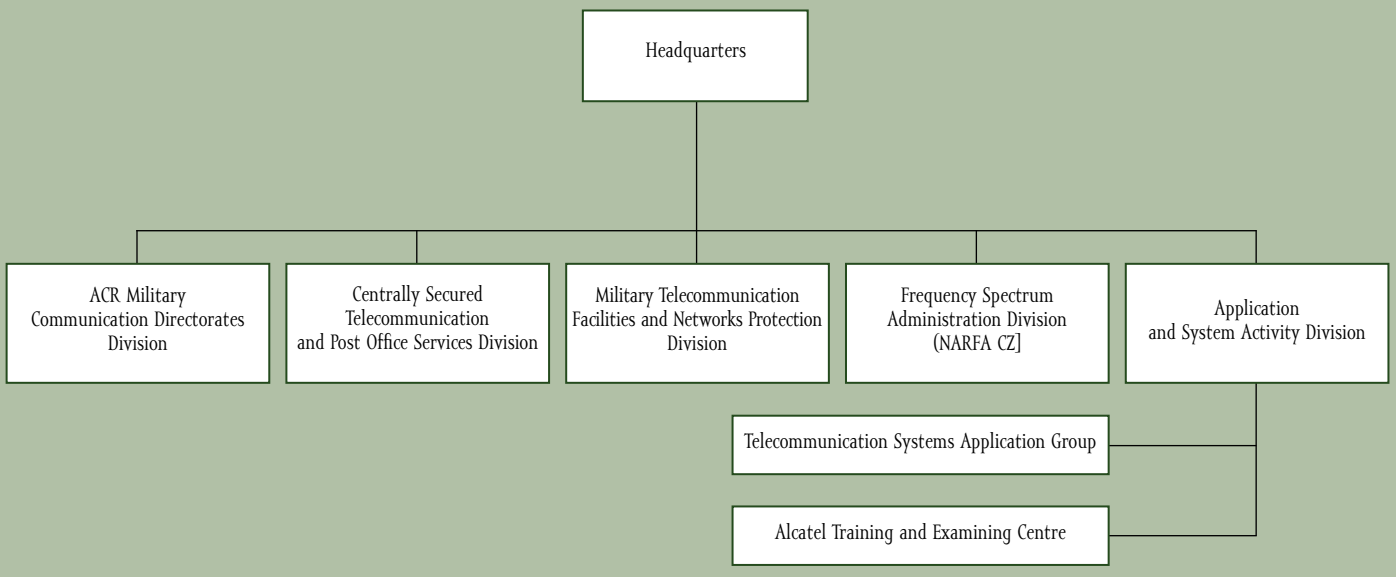
Tests of MPP-40p mobile access workplace

In the years 1993–1997, after the decay of Czechoslovakia and origin of the Czech Republic, the government made a number of gradual steps, e.g. to achieve the status of associate member of European Union or active participation in the Partnership for Peace (PfP). In order to achieve the NATO membership, it was necessary, beside the successful transformation of economy and democratisation of society, to satisfy a number of conditions in the sphere of policy, security and defence; namely, to elaborate our own doctrine and to accept a number of defence and security laws. On March 12, 1999, the Czech Republic became full member of NATO. The main objective of the national security policy was accomplished.

In the year 2000, Brig. General Vlastimil Picek became Chief of Signal Corps of the ACR General Staff again.

In June 2000, they established Communication Support Centres in Olomouc and Tábor and Radio Operation Centre in Lipník nad Bečvou. On the other hand, the Central Military Communication Directorate, Prague, 21st Communication Centre, Tábor and 22nd Communication Centre Olomouc were disbanded. The Base of Communication and Information Systems, Prague, became their legal successor.

Organisational chart of Central Military Communication Directorate as of October 1, 1999



The Command and Control Division of the General Staff was reorganised on July 1, 2000, and, at the same time it was transferred to the subordination of Deputy Chief of General Staff – Chief of Staff. Cancelling of the Central Military Communication Directorate necessitated creation of a body within the Signal Corps which would ensure development, building and supervision of command and control having departmental, all-army and international (NATO, WEU) competence and the execution of state administration in the department of defence in the sphere of communication and information technologies. It was namely Communication and Information Systems Agency (AKIS) which was created for that purpose.

Sleeve insignia of the Base of Information and Communication Systems, Prague

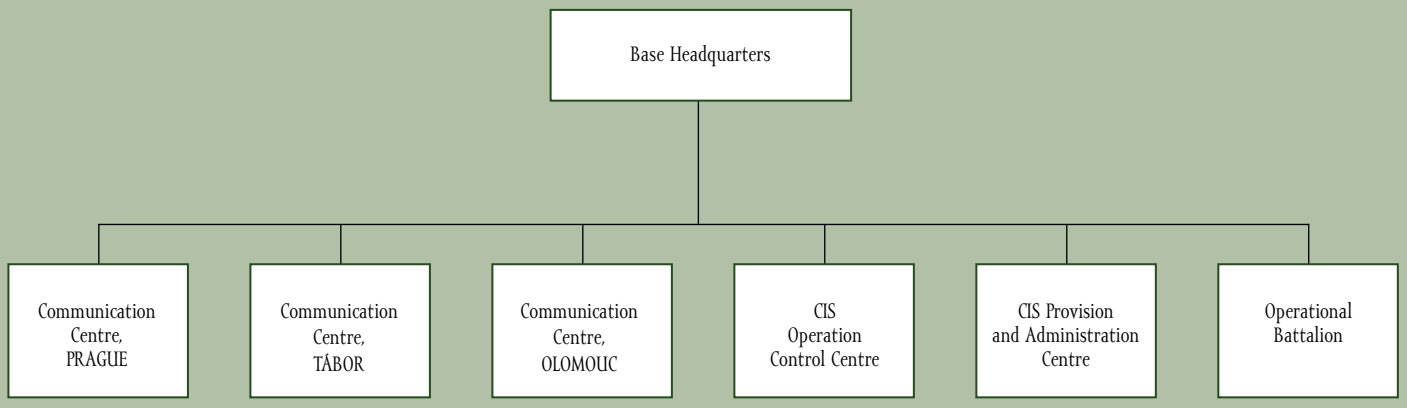
The Division of Information Technologies of MOD and the Offices Abroad was established within the Base of Communication and Information Systems, Prague, the same day, i.e. on July 1, 2000. The following units and facilities were reorganised at the same time:

- 60th Signal Brigade, Prague was reorganised to the Base of Communication and Information Systems, Prague, Drahelčice, Libeř, Unhošť, Benátky nad Jizerou, Slavkov, Tábor, České Budějovice, Písek, Plzeň, Velká Hleďsebe, Příbram, Litoměřice, Žatec, Liberec, Pardubice, Olomouc, Brno, Havlíčkův Brod, Žamberk, Kroměříž, Ostrava;
- Development and Technology Centre of Information of ACR, Prague - to the Agency of Communication and Information Systems of Prague, Ústí nad Labem, Hradec Králové, Brno, Ostrava;
- Cipher Service Centre, Prague – to new organisational structure with a detached workplace in Hranice.

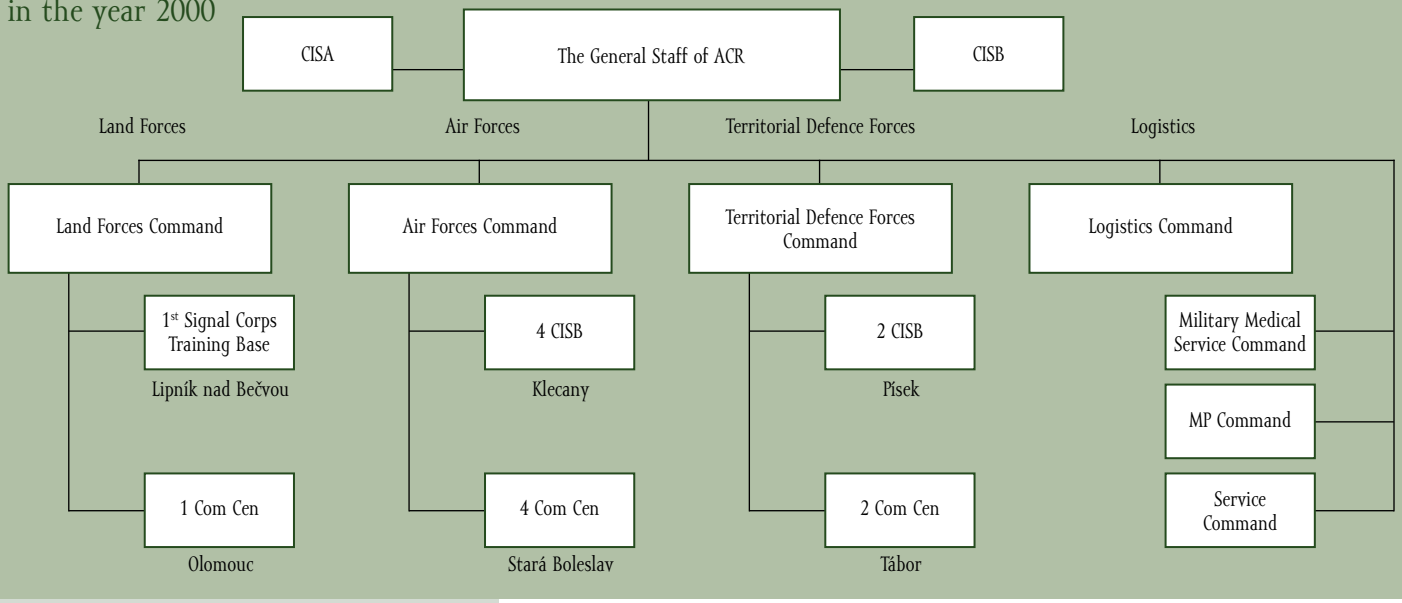
Sleeve insignia of the 2nd Base of Information and Communication Systems, Písek

At the turn of September and October 2000, the 61st Signal Brigade, Beroun, was cancelled. The Base of Communication and Information Systems, Prague, became its legal successor. On the other hand, the following units were newly established: 11th Signal Battalion, Brno, 1st Signal Battalion of the 1st Training Base of the Signal Corps, Lipník nad Bečvou, Signal Battalion of GS and Centre of Communication Support with a detached workplace in Tábor garrison (both of them within the 2nd Base of Communication and Information Systems, Písek). The 1st Signal Brigade, Lipník nad Bečvou was reorganised to the 1st Training Base of the Signal Corps, 2nd Signal Brigade, Písek – to the 2nd Base of Communication and Information Systems, 1st Project and Technology Centre of Informatization, Olomouc – to the 1st Command Support Centre and the 4th Brigade of Communication Systems, Klecany, Hradec Králové was reorganised to the 4th Base of Communication and Information Systems.

Communication and Information Systems BASE in the year 2000



Organisational structure of the Czech Armed Forces (ACR) and assignment of Signal Corps elements in the year 2000



Colonel GS Jan Ševčík (*1951)

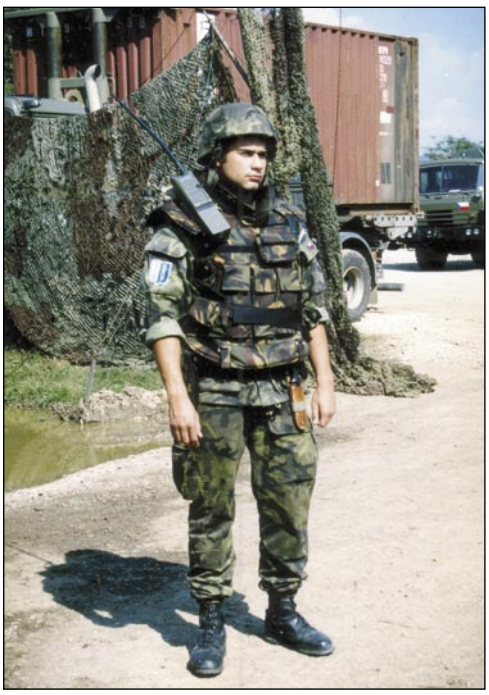
In 1971, Jan Ševčík graduated from Signal School in Nové Mesto nad Váhom. In 1981, he accomplished his study of military communication engineering at AZ MA in Brno. He served in the positions of Signal Battalion Commander of a Signal Regiment, Commander of Signal Centre of Western Military District and Deputy Chief of Signal Corps of the Czech Armed Forces GS. In 1998, he accomplished his study in higher academic course of the General Staff, concerning state defence management, at Military Academy in Brno. In the year2001–2002, he held appointment of the Chief of Signal Corps of the Czech Armed Forces GS.

In the year 2000, Colonel GS Jan Ševčík became the Chief of Signal Corps of the General Staff of ACR.

Organisational changes were made at the end of the year. The following units and facilities were reorganised by September 30, 2001:

- The Base of Communication and Information Systems, Prague, was reorganised to new organisational structure being located in the following garrisons: Prague, Liberř, Benátky nad Jizerou. Slavkov, Tábor, České Budějovice, Písek, Plzeň, Velká Hleďsebe, Litoměřice, Liberec, Pardubice, Hradec Králové, Olomouc, Lipník nad Bečvou, Brno, Havlíčkův Brod, Žamberk, Opava and Nový Jičín.
- The Agency Communication and Information Systems, Prague, was reorganised to of new organisational structure being located in Prague and Drahelčice;
- Cipher Service Centre, Prague and Hranice.

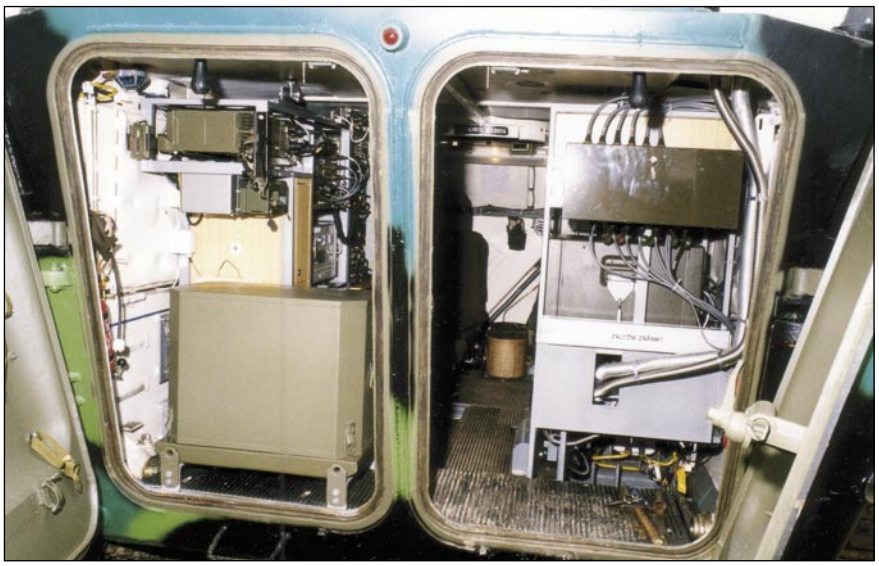
Command and Control Division of GS was reorganized and subordinated to the Chief of the General Staff by October 1, 2001. Reorganisation of the 2nd Base of Communication and Information Systems, Klecany, resulting in cancelling the Training Battalion, Hradec Králové, was made the same day. The following units and facilities were disbanded by the last day of the year 2001: Research and Communication Workplace No. 020, Strakonice; Research and Communication Workplace No. 090, Stříbro and 2nd Operational Centre, Křtiny. Research Communication Centre became its legal successor. At the same time, the Base of Communication and Information Systems, Prague, was transferred from the subordination of the Chief of the Command and Control Division, GS – Security Director of MOD to the subordination of the Commander of Territorial Defence Forces.



Member of KFOR peacekeeping operation in Kosovo with RF-series radio station

In the year 2002, Colonel GS Jan Kaše became the Chief of Signal Corps of the General Staff of ACR.

MRRPp mobile radio-relay workshop in ROS automobile

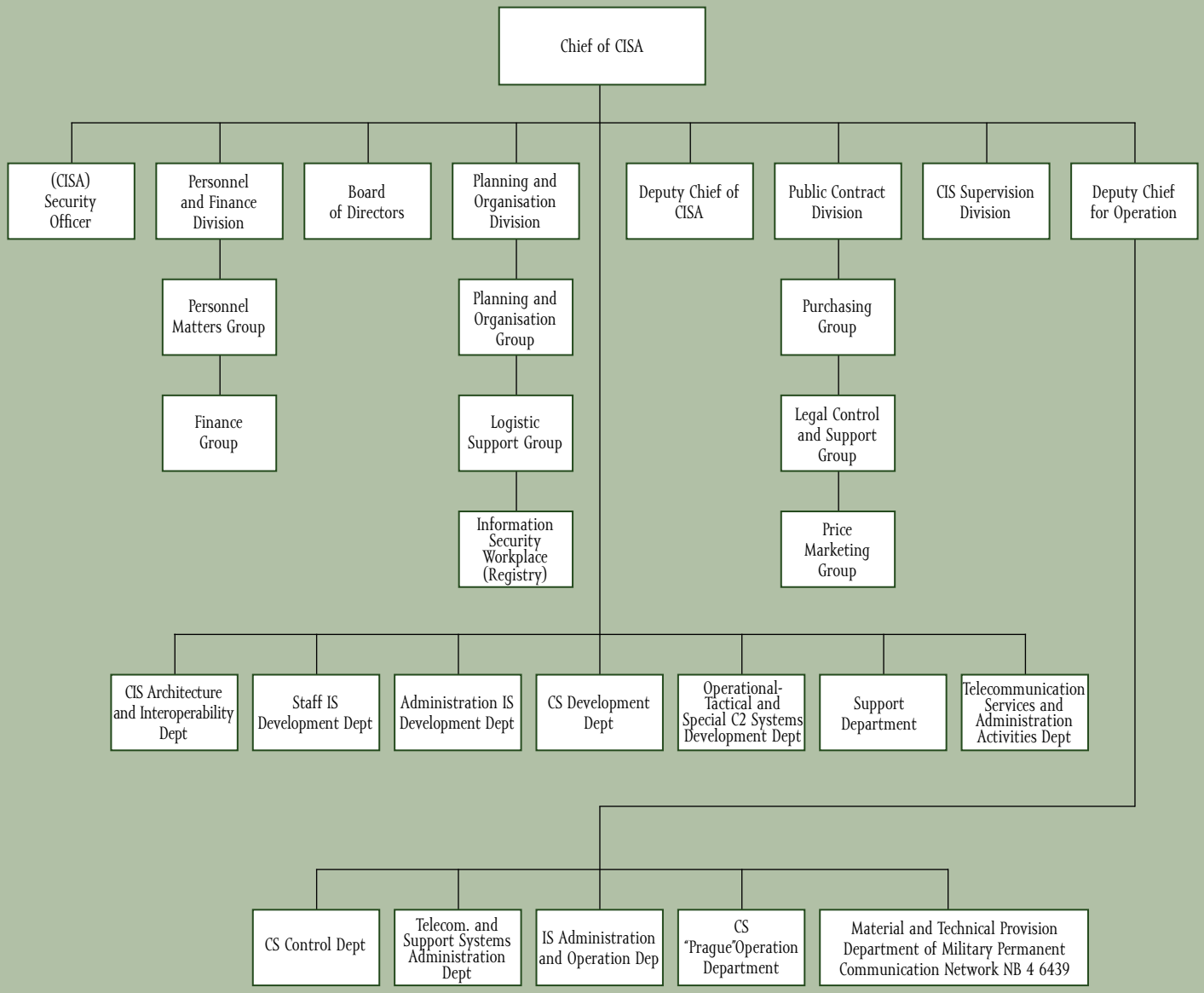


MPP-40p BVP mobile access workplace

Colonel GS Jan Kaše (*1959)

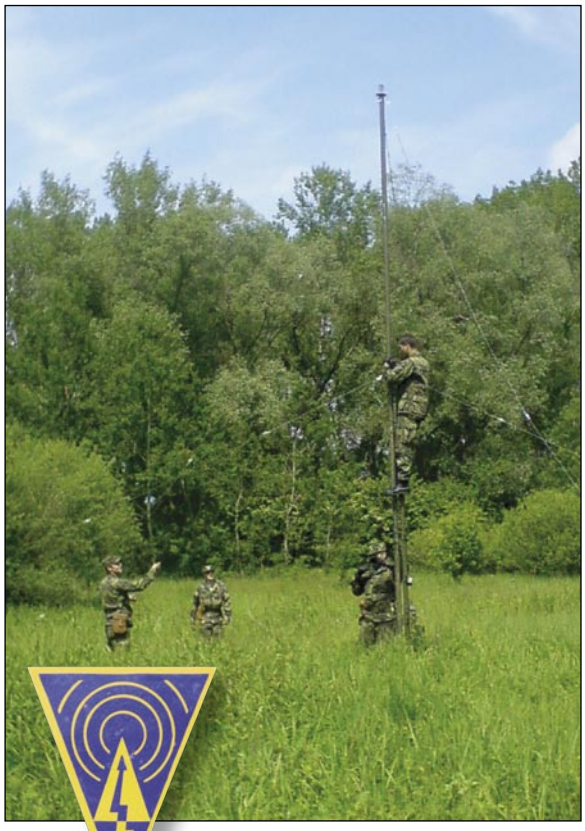
In 1978, Jan Kaše graduated from Military Secondary Technical School in Nové Mesto nad Váhom. In 1984, he accomplished his study at AZ MA, Brno; specialisation: automation of command and electronic computers. He served in the positions of Chief of Information Systems Development Division of the Czech Armed Forces GS, Chief of Technology Development Division of the Czech Armed Forces GS and Chief of Command and Control Development Department of the Czech Armed Forces GS. In the years 1996–1997, he graduated from Military Signal School of Bundeswehr in Feldafing and, in the years 2000–2001, he passed an operation-commander's course of the General Staff at Military Academy, Brno. In the year 2002, he held the office of the Chief of Signal Corps of the Czech Armed Forces GS. In the years 2005–2007, he was defence adviser of NATO Contact Embassy at the representation abroad in Tel Aviv. Since June 2007, he is again the Chief of Signal Corps of the Czech Armed Forces GS.

Communication and Information Systems Agency (CISA)



In the year 2003, Brig. General Jiří Baloun was appointed the Chief of Signal Corps of the General Staff of ACR.
Primary mission of the Signal Corps of the Czech Armed Forces is to provide communication and information support for the units of the Defence department in permanent garrisons as well as in field conditions with an objective to enable the commanders and staffs to achieve sufficient and high quality information for their decision making. It keeps providing the development and operation of the systems of communication and information support of command and control with an emphasis laid on planned concentration of smaller units and facilities into larger units and facilities in order to satisfy the requirement of maximum effectiveness of the expended resources on the operation and maintenance

Communication of the 6th Field Hospital within ISAF peacekeeping operation in Afghanistan in the year 2002



of the communication and information structure and training provision.

Military Technical Institute of Electronics, Prague, was established within subordination of the Chief of Command and Control Division, GS – Security Director of MOD, on April 1, 2003. However, the Institute was cancelled on December 1, 2003 already and the Informatics Development Agency became it legal successor.

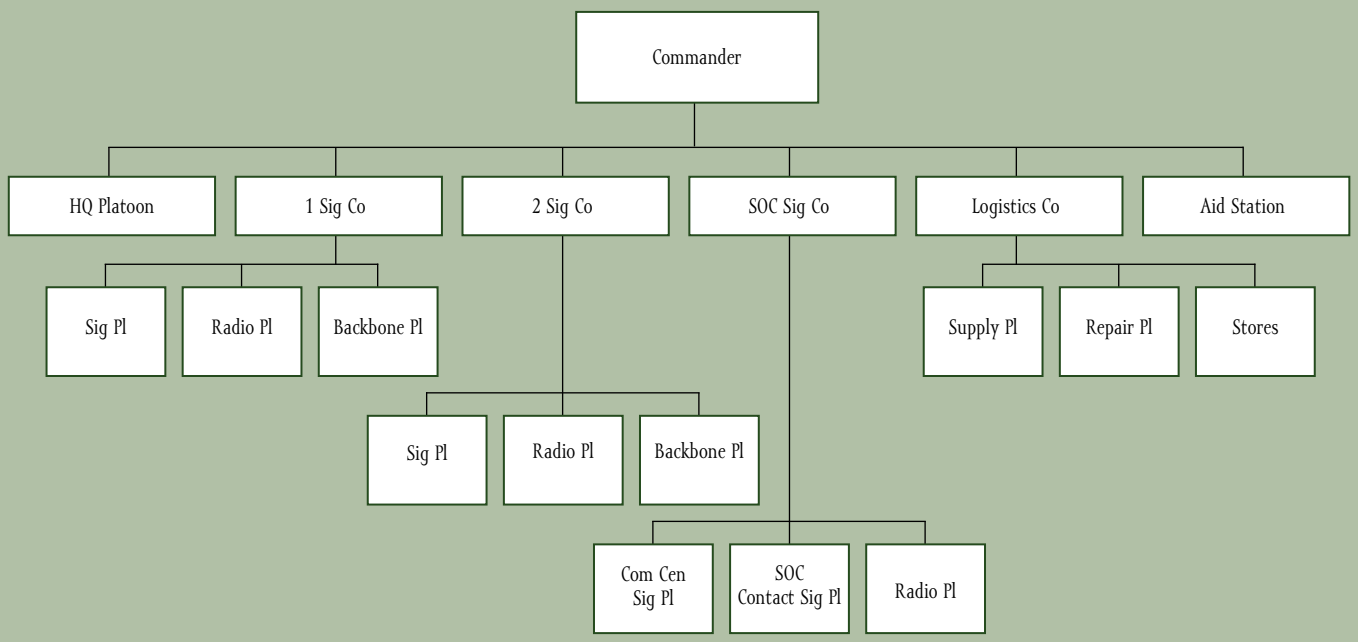
On December 1, 2003, in connection with reorganisation of the 1st Training Base of Signal Corps, they established 101st Signal Battalion which was subordinated to the Commander of Joint Forces. Its mission was to perform the tasks in favour of the brigade task forces to the benefit of Joint Operational Centre (JOC) of the Ministry of Defence. The Signal Battalion is organisationally constructed so that is able to develop command posts with voice and data communication, to deploy the support communication network and to provide voice and data SW and UHF radio communication with superiors, subordinate units and coordination forces.

In harmony with the reform of the Czech Armed Forces, there were a number of further organisational changes made in the year 2004. On January 1, 2004, it was the Agency of

Brig. General Jiří Baloun (*1961)

In the year 1983, Jiří Baloun graduated from Military Technical College in Liptovský Mikuláš; specialisation: commander-engineer, signal. In 1992, he accomplished three-year postgraduate study at Military Academy in Brno. He served as Deputy Commander of the Operation-Technical Service of the Radio Relay Centre of Signal Corps Division, GS; Chief of Command and Control Development Section, GS; Chief of Communication and Information Systems Agency of Command and Control Division, GS. In the years 2003–2007, he held appointment of the Chief of Signal Corps of the Czech Armed Forces GS.

Organisation chart of 101st Signal Battalion

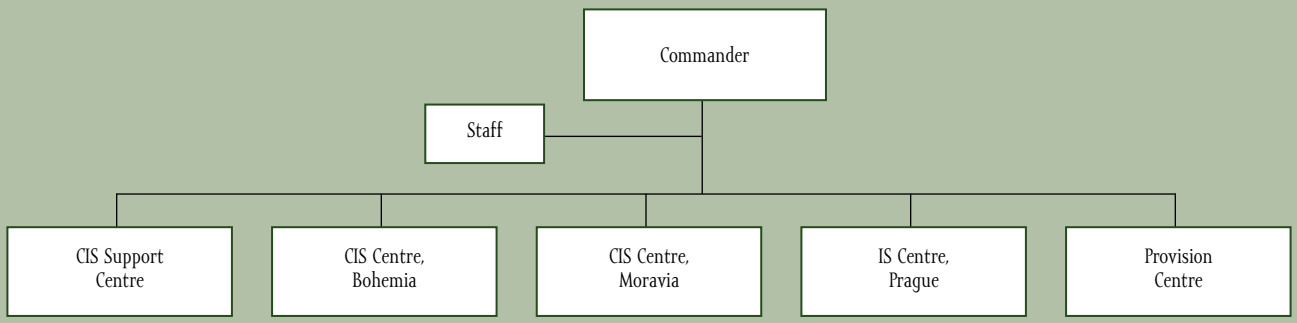


Informatics Development, Prague, which was established within subordination of the Chief of Command and Control Division, GS. Moreover, they established new Institute of Security Director of MOD and Security Department of MOD. In a short while, there was another change resulting in transferring the Agency of Informatics Development from the subordination of the Chief of Command and Control Division, GS to the newly established Division of Communication and Information Systems of MOD.

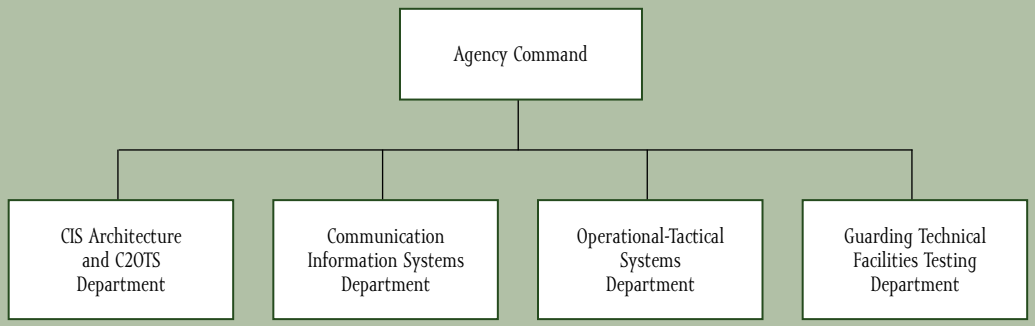
The following components were included in to the organisational structure of the 34th Base of Communication and Information Systems by January 1, 2004: Supervision Division, Communication and Information Systems Control Department, Information Systems Administration and Operation Department, Communication Systems Operation Department, Prague, and Material and Technical Provision Department of the Permanent Military Communication Network of the cancelled Agency of Communication and Information Systems. Thus, the 34th Base of Communication and Information Systems became the only executive element of the ACR for the provision of operation of the Permanent Military Communication Network which provides communication medium for all the components of the ACR. Individual workplaces of the Base are located all over the territory of the Czechoslovak Republic and secure the operation of the ALCATEL integrated service network as well as the operation of all-army data network (CADS).Primary mission of the 34th Base of Communication and Information Systems consists in the provision of operation, maintenance, supervision and control over the operated stationary military communication systems, provision of Post Division service by means of Permanent Postal Stations, provision of operation and administration of the departmental mobile telephone network and operation of the information systems of the Staff Information System (SIS) and Internet.

On March 31, 2004, the Command and Control Division, GS was cancelled and the Division of Communication and Information Systems, MOD, became its legal

Organisational chart of CIS BASE



Structure of Informatics Development Agency



Member of "Game Ennoblement" mission at Summer Olympic Games in Athens in 2004

successor. Agency of Informatics Development became legal successor of the Agency of Communication and Information Systems, Prague. On April 1, 2004, they established Division of Communication
and Information Systems (SKIS) having the Agency of Informatics Development in its subordination.

The Agency of Informatics Development is a body of the Director of the Division of the Communication and Information Systems, MOD – Chief of Signal Corps of ACR for the development of architecture of the MOD communication and information systems and operational-tactical systems of command and control till the phase of elaboration and farming out of the CIS project and for the support of the project management of CIS development. It is an organ of support of the solution of the research and development projects in the sphere of CIS and, at the same time, it is a technical specialisation guarantee in the area of information, communication, security and special electronic systems put into use of the department of Defence.

The Agency of Informatics Development provides:

- Project management and professional activity at all the phases of life cycle of the CIS development, including ensuring its interoperability, except for the phases of operation and maintenance if CIS;
- Execution of the tasks of defence research in the area of communication, information and security systems;
- Information support to the department of Defence at the implementation of the command and control processes;
- Professional activity in the bodies and working groups of NATO;
- Performing of the tasks of defence standardization in the sphere of CIS;
- Provision of the system and technical support for the solution of the tasks of object security in the department of Defence;
- Activity of the accredited testing department of the technical guarding devices;
- Central administration of data elements and dials in favour of CIS with the connections to the systems of public administration and NATO communication and information systems (CIS NATO).

On January 1, 2005, the Czech Armed Forces became fully professional armed corps continuing in its glorious traditions and ready to comply with all the present and future obligations.

BALT 2006 exercise in Poland

POHROMA 2006 exercise

In the year 2007, the Signal Corps consisted of the following components:

- Communication and Information Systems Division, MOD;
- Informatics Development Agency;
- Communication and Information Systems Departments at the Command of Joint Forces and Command of Support and Training Forces;
- Communication and Information Systems Base;
- Signal formations and units that deploy the mobile communication and information Systems;
- Security bodies of the communication and information systems.

In June 2007, Colonel GS Jan Kaše was reappointed Chief of Signal Corps of the Czech Armed Forces GS.

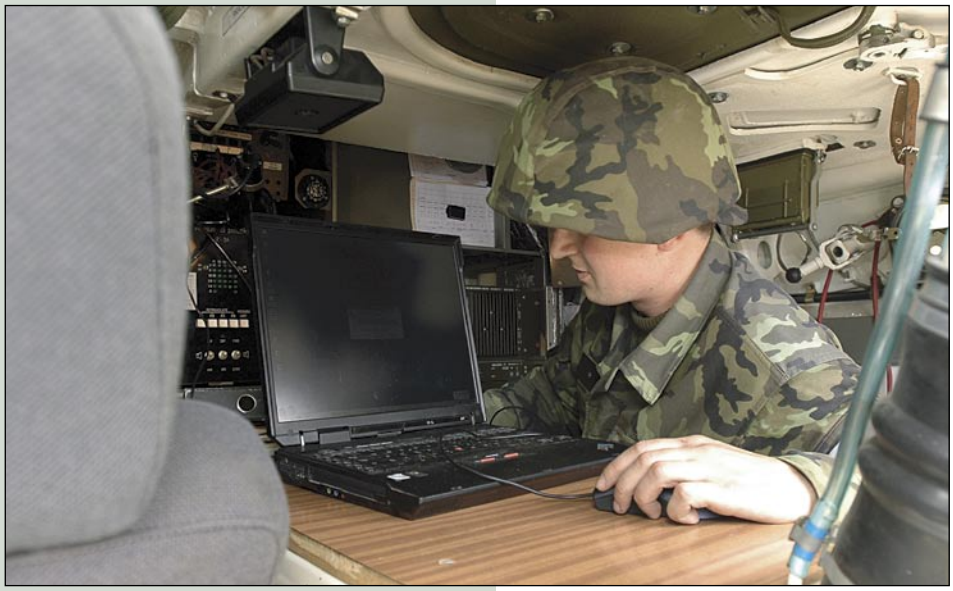
Base of the 8th KFOR Contingent – Kosovo 2006

After the year 1990, the system of training of the troops radically changed. Professional training of signal formations and units was aimed at maintaining the combat readiness and execution of complete training in development of communication systems.

Defence University in Brno has radically changed and modernised its curricula with an objective to achieve European standard of the developed universities. It provides accredited education in Bachelor's, Master's and Doctor's programs of study of military, military-management, economic, technical and medical specialisations. The training is based on the up-to-date knowledge from military science, research and development within national and international extent and on its own scientific research. Objective of the training at the University is not aimed at preparation of graduates to perform concrete functions in the units and facilities of the ACR, but to provide them with the knowledge that would enable them to manage the activity in certain area of control and command. The students achieve the military and command-related knowledge namely at the military training even out of the University, within a basic training, basic application course and professional officer's course.

Military Academy in Vyškov, bearer of historical name "of Hranice Academicians", was established on the basis of the Order of Minister of Defence, dated May 7, 1996. On September 1, 2004, the Military University of Land Forces was cancelled and its Centre of Information Technologies, guaranteeing the development in the sphere of information and communication technologies, was transferred to the Military Academy in Vyškov.

Computer classroom



Network Challenge 2006 exercise

Exercise of the 7th Mechanized Brigade in the year 2007

Training of the 5th ISAF Contingent for Afghanistan

On December 1, 2003, the Training Centre, Vyškov was reorganised to Training Base, Vyškov. Its scope of activity was substantially enlarged. The basic training of the soldiers of compulsory military service, alternative military service and active reserves was enlarged by the training of military professionals in specialisation courses a.o. in the Course of Signal Communication Specialisations at a detached workplace in Lipník nad Bečvou. On April 1, 2005, the relocation of the Course of Signal Communication Specialisations from Lipník nad Bečvou to Vyškov was accomplished. The Course of Signal Communication Specialisations trains the soldiers for basic and professional military functions in the units.

In order to achieve new professional knowledge and to continue in the started cooperation within the PfP Programme, the Signal Corps began to plan and execute joint exercises with the communication equipment called COMBINED ENDEAVOR. In addition to this, the signalmen provided communication at the exercises organized on individual command levels and at the exercises aimed at humanitarian and rescue operations. Participation of the members of Czech Armed Forces in peacekeeping missions on European continent (SFOR – in Bosnia and Herzegovina; AFOR – in Albania; KFOR – in Kosovo) as well as in the NATO led international peacekeeping operations (Kuwait, Iraq, Afghanistan) was always organisationally provided by modern equipment which secured their activity and enabled the members of the mission good contact with their homes. Historically first joint exercise of EU and NATO was held in the year 2003. Main objective of the exercise was to train the approved procedures of the crisis management of EU in cooperation with NATO. It was proved that the information shared through the communication and information systems will play important supporting role in making political and military decisions at the solution of actual situations of crisis.

The Signal Corps has always been successful in providing the communication and it is ready to continue in this tradition even in the new conditions within North Atlantic Alliance.

COMMUNICATION EQUIPMENT IN THE YEARS 1990–2007

In 1991, after the collapse of communist regime and subsequent decay of Warsaw Treaty, new stage of heading for Euro-Atlantic structures began. However, at the turn of the eightieth and ninetieth, the communication equipment of Czechoslovak Army corresponded with the unification practicised in the countries of the Warsaw Treaty. The Signal Corps disposed of the following number of the main kinds of communication equipment used for the provision of actual communication by December 31, 1990:

	Type	Number		Type	Number
Space communication stations	R-440 U	2	Signal security device	T-206	165
	R-440 O	7		T-206 3MI	50
CSPA radio stations	R-136	6		T-217 M	350
	R-161 A2	60		T-219	269
	R-140	344		T-230-1A	30
	R-137	37		T-230-2	42
	R-118	530	Interier Workplaces	N-13	10
	RM-31 Ma	1095		N-15	3
	R3 AT R4 AT	336		P-252 M1	3
Tropospheric stations	R-412	24		K-9	9
	R-417	7		P-209-1	29
Radio-relay stations	R-414	8	PASUV	PASUV TS	2 Sets
	R-404	48			
	RDM-6	350			
	RDM-12	268			

At the beginning of the ninetieth, the Signal Corps discovered quite new possibilities. Approach to the western production bases and components base of the recent communication and information technologies was open. Thanks to that, they could start digitising the communication system. At the same time, they began to upgrade the permanent military communication network. Analogue exchanges were not able to satisfy the requirements of staffs and the commonly used public telecommunication transmission routs did not secure the required speed. Moreover, their operation was expensive. Development of digital environment for the subscribers of the Army communication network became priority in that period. Installation of ALCATEL telephone exchanges of the French producer and rapid accomplishment of digital transmission system of TEMPO radio-relay set of domestic provenience began with an objective to be practically incorporated in the territorial communication system. Simultaneously, the phase of setting the requirements upon the prepared development of digital communication set for TAKOM field communication system started as well. New conditions for the development and construction of automated information systems (AIS) appeared. The political and economical changes resulted in better availability of the recent information technologies and know-how, enabling the development of modern automated information systems which substantially contributed to the rationalisation and higher effectiveness of the control and decision-making processes. Currently, we can state that the production of new information systems, including the all-Army data networks (CADS) and digital communication network, became a strategic tool of development of a modern and professional Armed Forces of the Czech Republic.

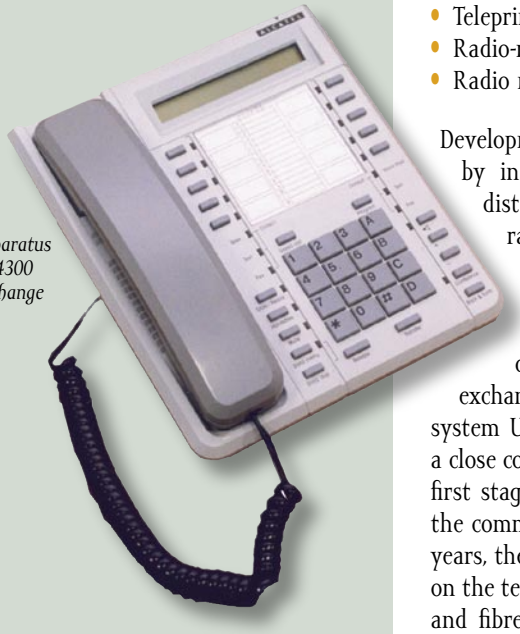
RDM-6 radio-relay station

Antenna mast of TEMPO radio-relay set in Prague-Petřín

The stationary communication systems made a corner stone of the Permanent Military Communication Networks and, in daily life of the armed forces, they constituted a proof of the motto: "NO CONNECTION, NO COMMAND". Therefore, it was a matter of course that the development of Permanent Military Communication Network was under continuous attention together with corresponding support provided not only by the Signal Corps authorities but also by the highest representatives of Armed Forces.

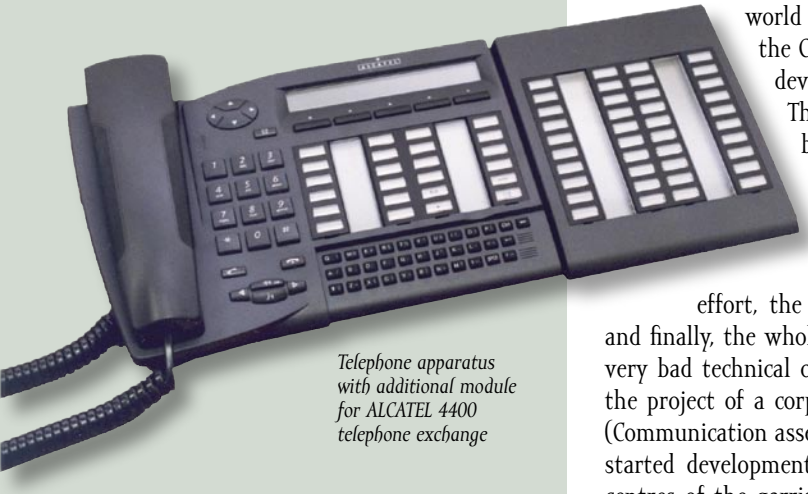
After World War II, the Permanent Military Communication Network consisted of the following networks:

- Telephone network;
- Teleprinter network;
- Radio-relay network;
- Radio network



Telephone apparatus for ALCATEL 4300 telephone exchange

Development of the telephone network began as early as the end of the fiftieth by installing the automatic telephone exchanges mutually connected by long distance links with MB relay sets and manual long-range operation. Some long-range directions were gradually automated on the basis of tone relay sets. In 1982, following the first stage, it was decided to upgrade the network and to develop a three-level area automated telephone network. In 1986, the reconstruction of the permanent military telephone network began. They developed the transit nodes and started replacement of automatic telephone exchanges by the models of the second and third generation (electronic analogue system UE) from TESLA factory in Liptovský Hrádok. With regard to the necessity of a close cooperation with the producer, the construction started in Slovakia. In 1991, the first stage of reconstruction (area automation of the territory of Slovakia, except for the communication centre, Nitra) by analog technology was accomplished. In the next years, the reconstruction was to continue by the development of the telephone network on the territory of Bohemia and Moravia using the fourth-generation digital technology and fibre-optic cable with PCM portable systems only. A radical change occurred in 1990 when the access to the up-to-date digital technology of the top world producers was open. The Signal Corps, GS, directly supported by the Communication Operational Centre, started the process of complete development of the Permanent Military Communication Network. The stage of digitalisation and accomplishment of area automation began.



Telephone apparatus with additional module for ALCATEL 4400 telephone exchange

In September 1985, they began to develop a Central Communication Centre in Prague. Delivery of EPKF 512/CH analog telephone exchange of BHG Hungarian producer with DPT 240/CH digital transit stage was accomplished in October 1990. In spite of high effort, the producer was not able to put the exchange into required state and finally, the whole delivery was dismounted and removed. In Brno, the problem of very bad technical condition of all the automatic telephone exchanges was solved by the project of a corporation of three companies: KABLO Děčín, Monážní podnik spojů (Communication assembling company), Prague and Energoinvest Sarajevo. In 1990, they started development of the new optical network between the main communication centres of the garrison and the first digital exchanges with JISTEL ET 200 centralised control, made in Yugoslavia by the licence of Bosch Company. During the escalation of the conflict in Yugoslavia, the Sarajevo plant of the supplier was destroyed by a direct bomb hit. Due to the abovementioned reason, they looked for a long-term reliable supplier of digital communication systems with integrates services.

The requirement concerning the development of communication centre of the new Military Command "Centre", Olomouc, appeared in September 1991. Based on the assessment of the conditions of the permanent military communication network and in harmony with the strategy of development of the public communications, the Chief of Signal Corps decided to develop this as well as other connected centres using up-to-date digital branch exchanges. The following systems were selected for the development of digital automatic telephone exchanges and military telephone network: ALCATEL 2600 DELTA, ALCATEL 2600 E, ALCATEL 4300 M and ALCATEL 4300 L of the ALCATEL BSG

ALCATEL telephone exchange

FRANCE producer. The ALCATEL 4300L makes the basis of the communication network for voice, data, text and picture transmission. Specific qualities of this type of the exchanges offer the possibility of operation in various environments. Since the year 1992, the network is developed on the basis of ALCATEL (A4300L, later on, A4400) technology. Garrison Centre, Olomouc, was developed as the first one. In addition to it, minor A4300L modules were installed in Prague, Tábor and Brno. Within the period of one year (from the middle of 1992 to the middle of 1993), they developed an overlap network providing not only a modern telephone connection for the newly established commands but also the long-distance automatic communication in a considerable part of military telephone network. New series of A4400 exchanges were delivered since the year 2000. In the year 2000, the project of development of the ALCATEL telephone exchange was closed and till the year 2010 only indispensable upgrading of the network is expected.

In spite of the fact that the teleprinter network was built on the teleprinter exchanges of the 1st generation (DAU 39 step-by-step system) - from the viewpoint of provided services – it was the most modern permanent communication system. The teleprinter exchanges mutually interconnected by multiple lines on the basis of the systems of tone telegraphy (at first, P-318 and TFT-24 and then, UFT-48), constituted an area automated network at the beginning.

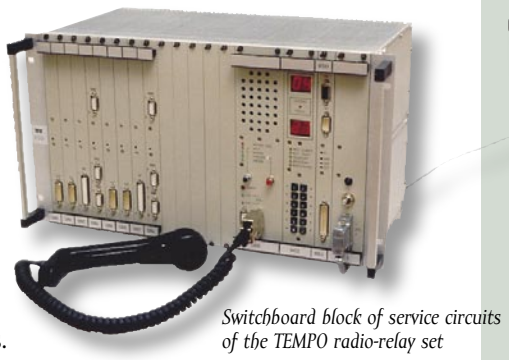
After the year 1990, its role was taken over firstly by facsimile communication, gaining the importance with the development of area automated telephone network and then (on quite new quality level) the developing data transmission.

At first, the permanent radio-relay network was built on the basis of "Michael" and RDS-66 radio-relay link and later, by R-400. In about 1983, it was upgraded by RDM 12 stations with the SNT 12 systems of carrier telephony and branch connection to garrisons by RDM-6 radio-relay stations. Introduction of TEMPO digital technology became a development and conception milestone of the permanent radio-relay network. The analog low-capacity communication was replaced by the digital flux which is used for both the telephone communication (interconnection of ALCATEL communication systems) and data communication. History of TEMPO task is relatively long. The first task titled TEMPO was elaborated at the beginning of the eightieth. The task formulated the requirements practically only for radio-relay link able to transmit the signals of both analog and digital multiplex with the transmission capacity up to thirty (maximum 120) telephone channels. Rapid development of digitalisation in civilian telecommunications, considerable obsolescence of the equipment used by CSA and, finally, the information from the available intelligence materials resulted in a substantial re-formulation of the task which already defined the complete communication system, i.e. not only the communication means proper but also the consequential telecommunication part – time division multiplexing device, supervisory system, transportable basis and special carriers of antenna parts. Elaboration of technical-economical analysis was ordered from TESLA Hloubětín Company.

In the situation when embargo was laid on modern component base, computing and measuring technology, the expenses should include even the sum planned for the development of components and some special material and technologies.

Antenna system of the permanent radio-rely network, Klínovec

Block of terminal equipment of the TEMPO radio-relay set



Switchboard block of service circuits of the TEMPO radio-relay set

Antenna system of the permanent radio-relay network, Krkavec

Antenna system of the permanent radio-relay network, Praděd

RF-13 radio station

In this way, the planned expenditures on the development of the facilities climbed up to nearly one billion CZK. In 1994, they made a prototype and started extensive tests. Series production and installation of the first 21 stations (communication centres or terminal stations) of the new stationary military radio-relay network began one year later. Czech Armed Forces make full use of modern digital transmission system which, thanks to its conception and quality, is ranked among the best communication systems of NATO countries. The TEMPO transmission system together with ALCATEL 4300L station constituted the first independent communication digital network within ACR.

The SRRD 8000 stac. (TEMPO) radio-relay set is intended for provision of multi-channel radio-relay communication within the permanent military radio-relay network and its mobile RACEK modification even in the field communication system. This system created a complete communication environment for all voice and data communications within the department of Defence. The SRRD 8000 stac. radio-relay stations are mutually interconnected through permanent radio-relay centres and permanent terminal radio-relay stations to the garrisons and location position of ACR. In the years 2002–2004 there was an optimisation of microwave network based on the newly risen requirements on the attachment to the permanent military radio-relay network. The requirement was satisfied by using commercial microwave stations of ERICSSON and NERA NL 185A type. At present, the permanent military radio-relay network consists of 33 stationary radio-relay centres (TEMPO technology) and 66 stationary terminal radio-relay stations (out of it, 28 radio-relay directions).

The permanent radio network was organised in the notification radio networks from the level of the GS to the level of formation and between the GS and Supreme Command of Warsaw Treaty. Radio operation was executed from Radio Receiving Centre (RRC), Drahelčice, by means of remote control of the Radio Transmitting Centres (RTC) No. 1, 2, 3. The RTC 1, Studánka, RTC 2, Petřín, since the year 1977 Dřevčice and since July 1, 1982, Liberč. The RTC 1, Studánka, and RTC 3, Jičín, din not practically operate in peacetime. They were ready to execute the radio operation during the state defence emergency. Primary mission of RRC Drahelčice was to provide internal and international radio operation in the radio networks and directions in both SW and UHV radio communications. The RTC included the workplace of intrastate radio communication, preparation of operational data for the subordinate subscribers of radio networks. Beside this activity the Receiving Centre, Drahelčice, provided training of female and male wireless operators. Activity of the RTC was ceased at the end of the year 2004.

The services in the sphere of mobile radio communication are provided by PEGAS UHV radio system. It is a non-public digital radio system working on the principle of multiple radio networks. The system is realised by MATRA COMMUNICATION 9600 technology. In the Czech Republic, it is used by Ministry of Interior for the Integrated Rescue System (IRS). Based on the Agreement concerning the use of multiple radio networks between Ministry of Defence and Ministry of Interior, the bodies of Ministry of Defence may use this system as well. Voice and data communication is partially secured against monitoring. The communication is realised in cryptographic regime with automatic central distribution of keys. Development of the system began in the year 1995. Till the end of the year 1996, they developed four independent networks. Development of PEGAS system continued even in the following years with an objective to build up an independent network for each region. The first stage served to accomplish the development of the network of Central Bohemia and to upgrade the network of Prague. Further networks of Jihlava, Brno and Zlín followed. Material of PEGAS system within the department of Defence is administered by the Base of Communication and Information

RF-1325, 25W radio station

RF-1350, 50W radio station

RF-13250 multifunctional radio station

RF-20 radio station with frequency change

RF-1301 radio station with data filler

Systems as a part of material of the permanent military communication network. Beside the mentioned concepts of modernisation of the communication and information environment in ACR, attention of the Signal Corps Command was concentrated on the creation of an integrated communication SW and UHV system to solve the questions of tactical communication. At the beginning of the ninetieth, they developed a new UHV radio station of RF-13 type having the parameters corresponding with NATO standards. The Czech Armed Forces dispose of manual, portable and mobile sets of UHV radio stations of RF series (producer: DICOM Uherské Hradiště) which differ in the power a in some special elements. A number of the radio stations introduced into ACR armament since the year 1995 contains manual RF-1301 station, portable RF-13 station and mobile RF-1325 station as well as RF-1350 station possessing power of 25 and 50 W. The newest UHV station of RF series is manual RF-20 radio station with the frequency jump and mobile FR-13250 radio station with the increased resistance against electronic warfare The radio stations of RF series are installed in the radio vans of R6p and R7p type. The medium-range communication makes use of modern SW R-150A (Rohde & Schwartz) radio station possessing power of 150 W, the module of which serves as a base for larger radio stations having power from 400 W to 1 kW.

In 1999, they started building of Radio Approach Centre with an objective to develop a system of SW communication for the main command authorities of Ministry of Defence, General Staff, Land Forces, Territorial Defence Forces and Air Forces and to ensure the coordination of Ministry of Defence, General Staff and NATO. The Radio Approach Centre solves the possibility of entry of the radio subscribers to the stationary military communication network regardless of the place of their location at the given moment and the possibility of use of all its accessible services. Depending on the operation purposes, the stations are established as centres (nodes) or terminals. The Radio Approach Centre is an inseparable part of the permanent military communication network. The Radio Approach Centres provide voice services and data transmission for mobile and stationary radio subscribers of the ACR command posts, including the

R-6p radio set with R-150 radio station

MRRP-4p mobile radio-rely workplace

RR-300 radio-relay stations in the MRRP-4p

RR-1600 radio-relay stations in the MRRP-4p

DTP-100 digital telephone exchange and radio stations of RF-series in the MRRP-4p

units and components stationed abroad. Since 1999, the development of the Radio Approach Centres was made by Rohde&Schwarz Company on the basis of SW radio stations of R-150 type. Users of the system are individual operational commands and earmarked units and components of ACR in the places of their permanent location as well as out of the territory of the Czech Republic.

An objective of the project of the Radio Relay Approach Centre was put into practice the use of the permanent military radio-relay network in order to provide the connection between the permanent military communication network and newly established communication workplaces of the TAKOM tactical communication system.

The basis of the project consisted in the replenishment of the systems of centres of the permanent military radio-relay network by radio-relay devices, used in the newly introduced field communication workplaces and their interconnection by group transmission paths detached from the transmission capacity of the permanent military radio-relay network with ALCATEL digital central. The digital RR-300 radio-relay station (product of TESLA Prague, JSC Company) was selected for the replenishment. There are three radio-relay approach centres, which enable direct high-frequency input to the permanent military communication network, equipped in this way.

Currently, the Czech Armed Forces dispose of modern permanent communication network with an integrated system of digital and communication environment providing the contemporary data, voice and multimedia services. The units earmarked for NATO are furnished with the command and control systems of Land Forces and Air Force equipped with TAKOM workplaces and the remaining units are also gradually refitted with these devices. At the same time, they elaborate the possible trends of the use of troops, their modernisation and improvement from the viewpoint of the requirements upon the rapidly developing Informatization.

After the year 2000, the objective in the sphere of informatization, development and modernisation of the communication and information systems consisted in the creation of a complete and integrated information and communication infrastructure providing support for Ministry of

MPP-100Mp mobile access workplace

Defence, commanders, headquarters and individual users on all command and control levels at their peacetime activity and in the situations of crisis, comprehensive operational use of the communication systems, achievement of the required interoperability with the systems within the Czech Republic (including the interconnection of departments) and NATO, application of a unified security policy of the communication and information systems of the department of Defence and development of the bases of a comprehensive command, control, communication, information and security system.

In order to achieve this objective, the following tasks have been accomplished:

- Operational-tactical command and control systems of Land Forces and Air Force;
- Completion and upgrading of the communication structure;
- Standard environment for data interchange in actual time (TADIL);
- System for elaboration and distribution of the data concerning the situation in the air in harmony with NATO system;
- Integration of the communication and information system of Air Force with NATO system within NATINEADS;
- Earth radio communication system of two Air Force Bases.

Building and development of the systems of command and control provision was divided, in accordance with the operational-tactical use, into the systems for Land Forces and systems for Air Force.

From the very beginning, the Operational-Tactical Command and Control (C2) System of the Land Forces was built as a mobile system involving the new platforms of the command posts together with the information technologies installed in the command posts as well as quite new filed communication system. The system created an environment which enabled substantial reduction of persons working in the operational and tactical staffs. This objective was achieved by a creating a common picture of the situation on the battlefield, available for all the users of the system in both graphical and text form and in a close-to-actual time. Thus, the conditions for applying the team work at the implementation of standard operation procedures solving the situations of crises were established. However, the system was designed in the period when the Armed Forces disposed of substantially higher number of formations, units, persons and equipment. After the organisational changes in the Armed Forces resulting in the formation of smaller-size professional Armed Forces equipped with modern armament,

Block of line completion of the MPP-100Mp

KR-100 cable distribution box of the MPP-100Mp

View of the left side of the MPP-100Mp

TPD-97 digital telephone apparatus

R-7p radio set with R-150 radio station

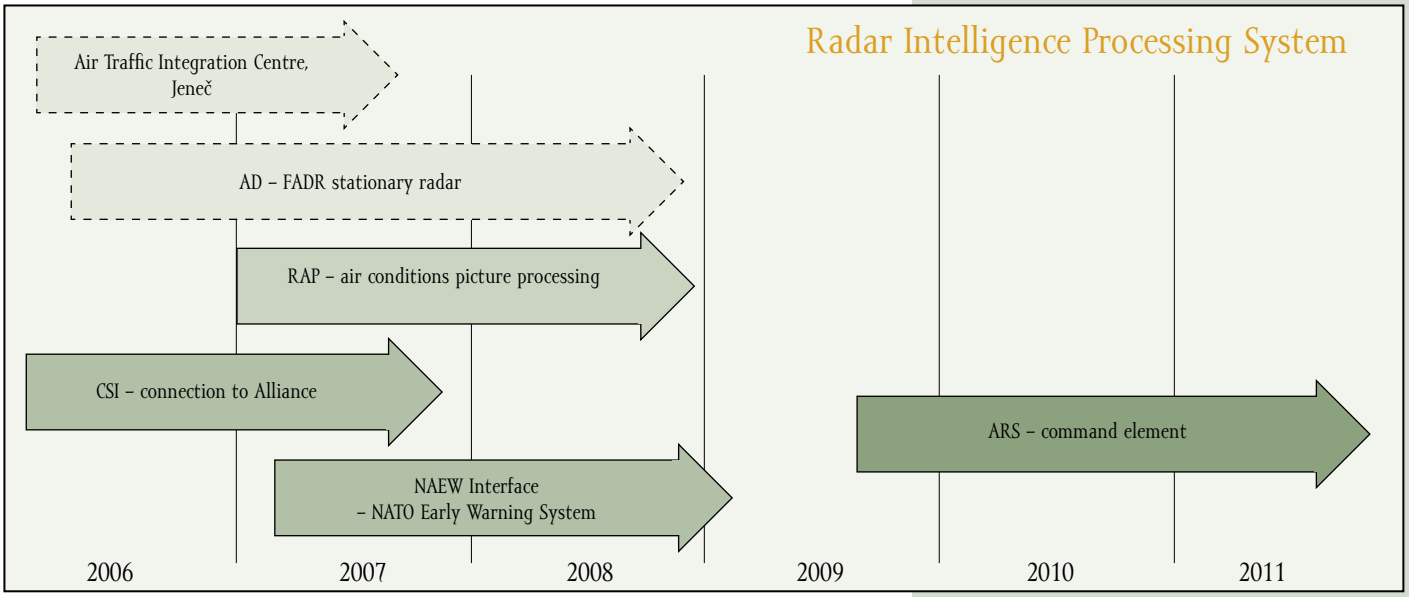
the project of operational-tactical system of command and control of the Land Forces passed through radical changes. In the year 2005, they elaborated an analytical document which revised the contract documents from the beginning of the development of the system. Principal emphasis within the system modernisation was put on securing full interoperability with similar NATO system because the units, having achieved the operational capabilities, had to be able to work within international operations. The field communication system had also passed through an upgrading within the frame of which they gradually introduced the new radio stations that enabled substantial increase of data transmission speed from directly subordinate units of mechanised brigades and battalions.

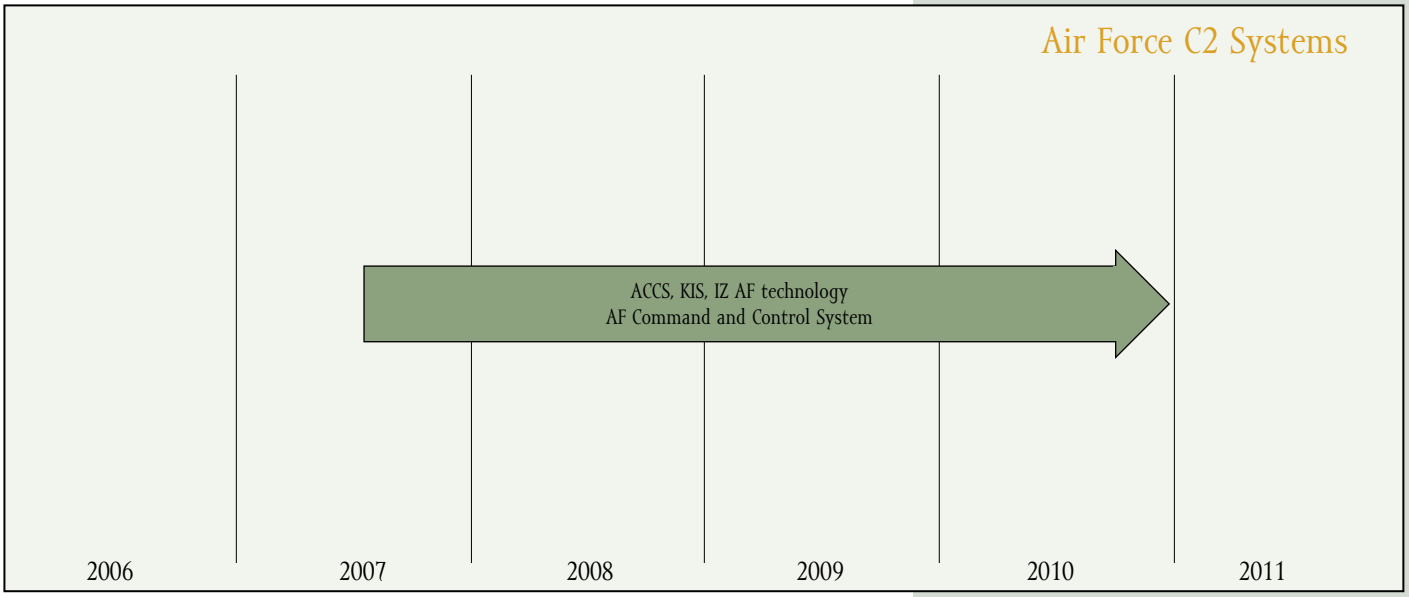
Development of the Operational-Tactical Command and Control System of the Air Force continues in the ISPOVEL project which started in the ninetieth and ended in the year 2003. The first phase of the ISPOVEL project solved namely the sphere of science, research and development and resulted in a number of prototypes of individual systems (SHARC, LADIC, LADCP, etc.). In the years 1999–2000, the development of the system was affected by Czech Republic's accession to NATO. The Czech Republic, as the NATO member, started to implement the projects within NATO – NSIP security investments (back-bone radars, reconstruction of Air Force Bases and command post, etc.). Currently, the two programs of national development – the Operational-Tactical Command and Control System of Air Force and the program within NATO – NSIP security investment are converging. It results in an acquisition of individual components of the comprehensive system in the spirit of uniform NATO architecture. The system is intended for communication and information support of the command and control process of the ACR Air Force. The obsolete communication equipment is gradually replaced by modern technology in order to ensure the execution of tasks of the ACR within NATO operations. The Operational-Tactical Command and Control System of the Air Force includes the combat information and control systems of the Air Force, communication system of the Air Force and stationary and mobile command posts of the Air Force, system of active and passive radar sensors, IFF identification system and navigation system using the GPS space identification. The communication system of command and control position of the Air Force is solved by PS-2000/TTC digital dispatching device. The sphere of development of the Air Force communication system expects using of TAKOM workplaces.

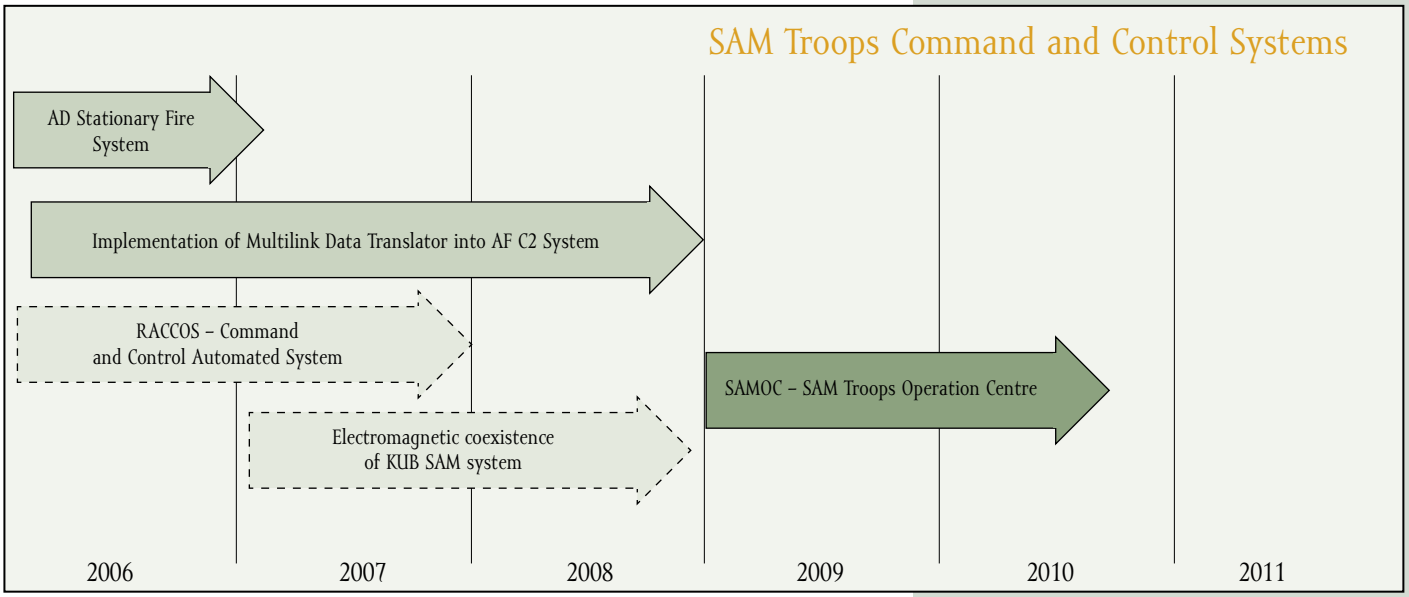
R-7M1p workplace

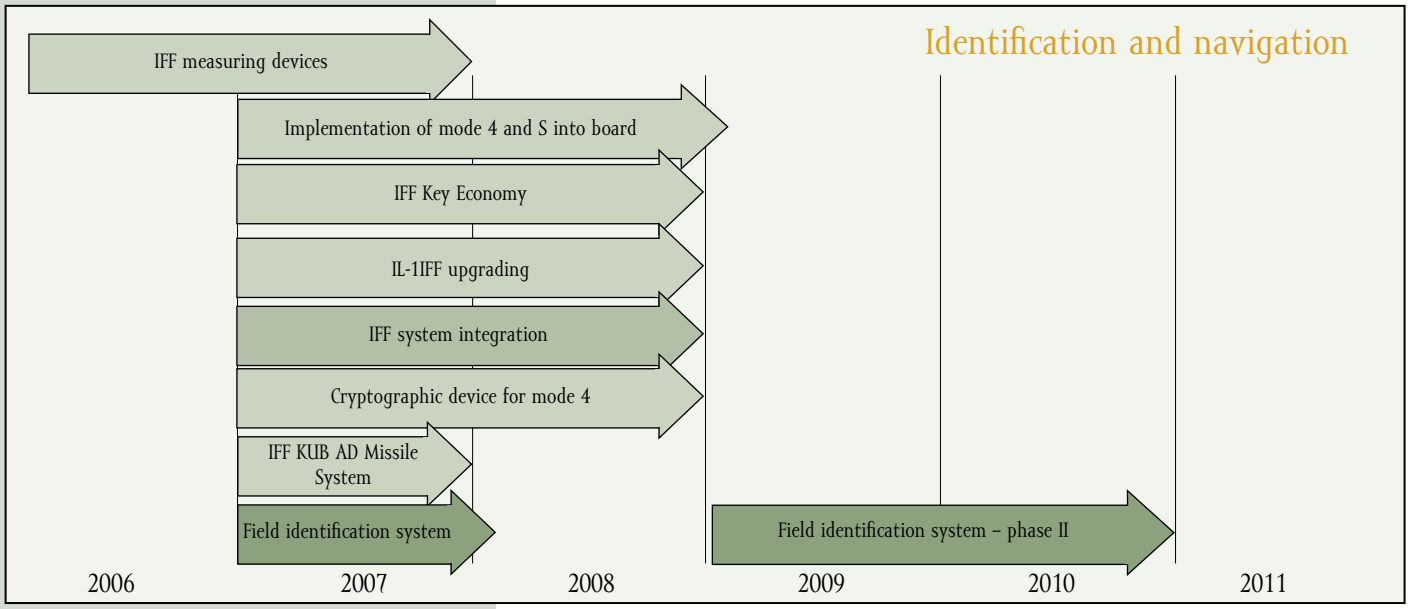
TPA-97 analog telephone apparatus

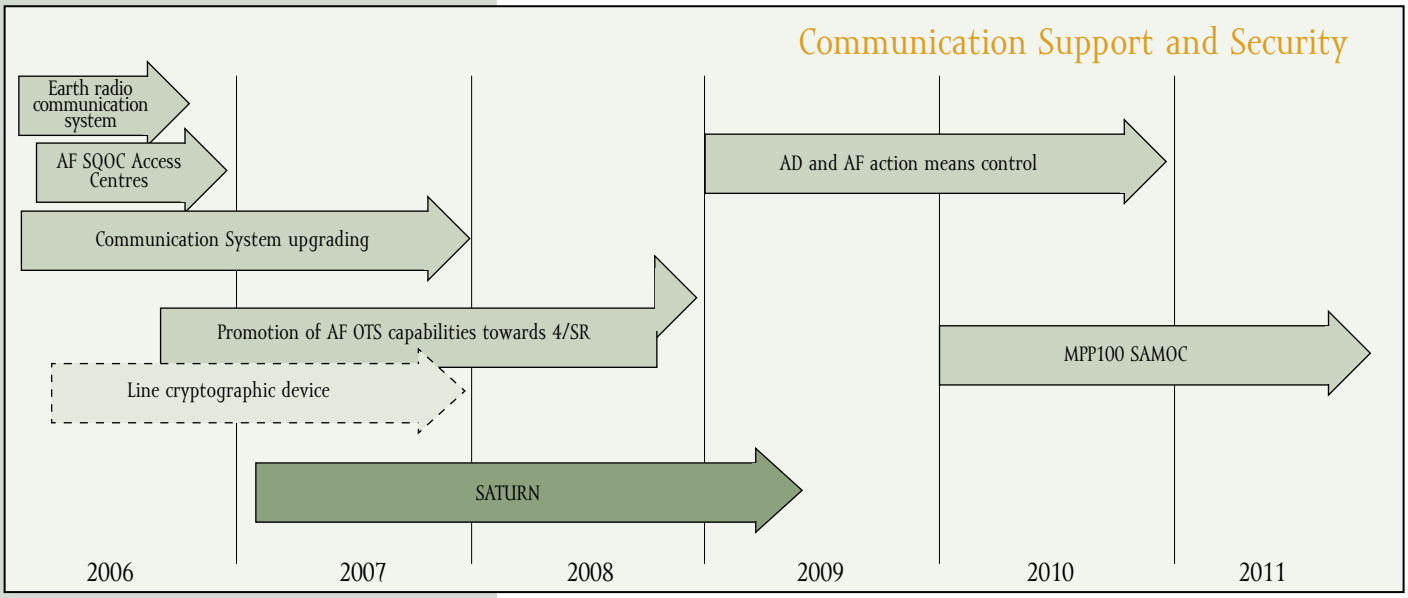
Plan of Development of Individual Spheres of Command and Control (C2) Operational -Tactical System of the Air Forces:

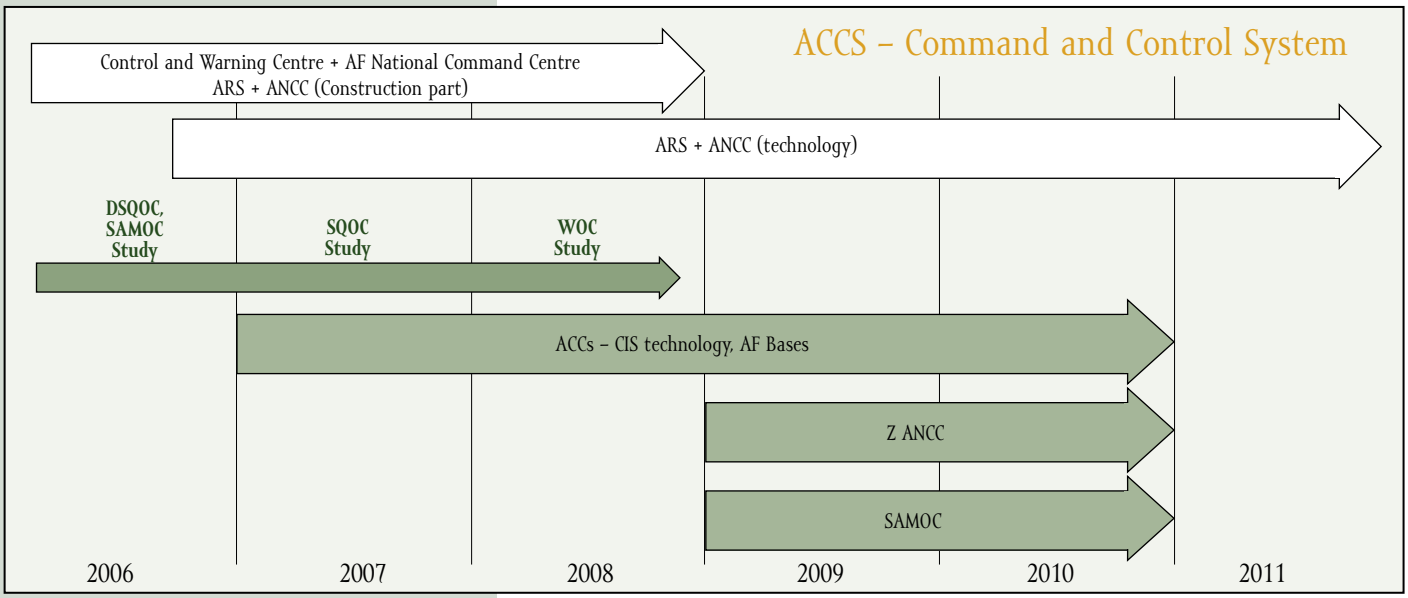







Identification and navigation
IFF measuring devices
Implementation of mode 4 and S into board
IFF Key Economy
IL-1IFF upgrading
IFF system integration
Cryptographic device for mode 4
IFF KUB AD Missile System
Field identification system
Field identification system – phase II
2006
2007
2008
2009
2010
2011


Communication Support and Security
Earth radio communication system
AF SQOC Access Centres
Communication System upgrading
Promotion of AF OTS capabilities towards 4/SR
Line cryptographic device
SATURN
AD and AF action means control
MPP100 SAMOC
2006
2007
2008
2009
2010
2011


ACCS – Command and Control System
Control and Warning Centre + AF National Command Centre
ARS + ANCC (Construction part)
ARS + ANCC (technology)
DSQOC, SAMOC Study
SQOC Study
WOC Study
ACCs – CIS technology, AF Bases
Z ANCC
SAMOC
2006
2007
2008
2009
2010
2011

PRM-M1p mobile retransmitting workplace

The field communication system TAKOM is intended for information transmission in the units of Land Forces and Air Force deployed in the areas out of their permanent garrisons. It is designed to provide communication according to current and expected requirements of its users within the time horizon of 15 years. It provides early, authentic and secret transmission of information in the conditions of the combat dynamics. From the viewpoint of military requirements, it is characterized by resistance, permeability, security and mobility. Primary attention is aimed at securing the interoperability with field communication systems of NATO countries. TAKOM is intended to ensure the command and control process for the troops deployed in the field. Functionally, it is designed as a digital network with integrated services. It includes the data network which is divided, according to command level and transmission sub-system, into node (centre) part and radio part.

Currently, the Concept of Informatization of the Department of Defence (KIRO) represents a basic conceptual material, setting a long-term concept of development of professional ACR and mobilisation of the Czech Republic's Armed Forces for the sphere of automation of the department of Defence and the Signal Corps of the ACR. The concept defines the information and communication strategy of Ministry of Defence and provides a frame of initial system conditions of the information and communication support of commanders, headquarters and other workers of the department in the command and control process in peacetime and in the situations of crisis. It sets conceptual intentions in the sphere of communication and information infrastructure and framework procedures of their implementation including necessary financial and personnel resources. Twice a year, the concept is regularly updated in harmony with the new operational requirements, trends of development of the information and communication technologies, and the results of defence research and development.

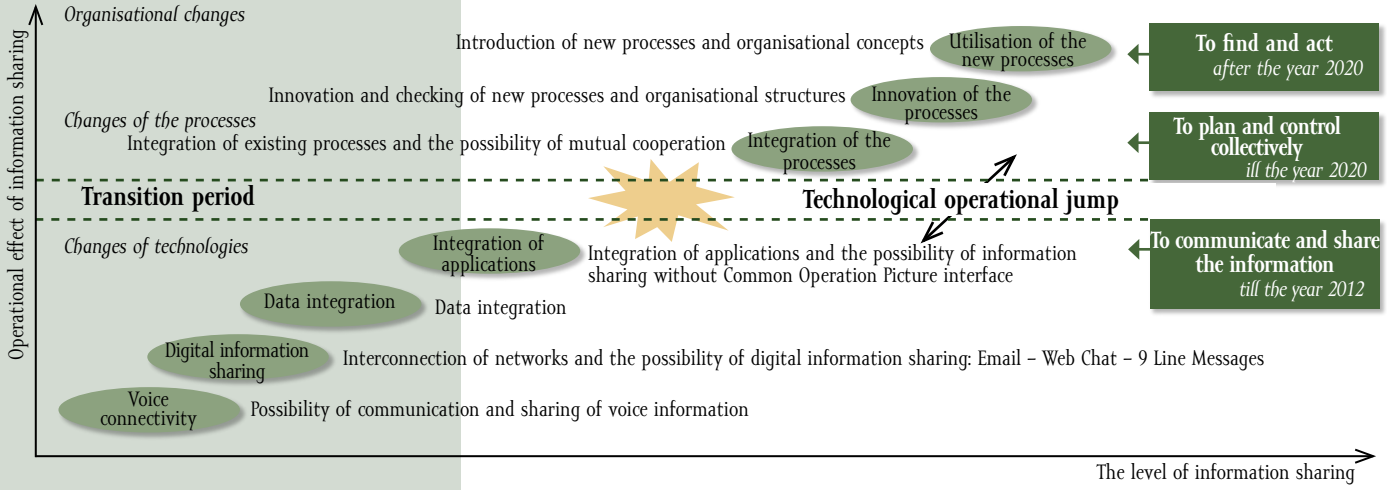
MPP-40p BMP mobile access workplace

PRM-M1p vehicle commander workplace

R-5M1p BEČVA armoured mobile command post

VOV-1p commander's tracked armoured vehicle

The deep changes and trends of development in the security and operational environment necessitate quite new and radical requirements put upon the character and tasks of Armed Forces that are expressed in transformation tasks of NATO, recognized even by the Czech Republic. The most important goal of the whole transformation is achieving of superiority in decision making, namely by achieving the superiority in information, based on the implementation of Network Enabled Capability (NEC). The NEC presents the theory and practice of the war in the era of information. It includes the combination of strategy, newly arising tactics, techniques, procedures and organisational aspects which enable the units interconnected in the integrated (communication and information) environment, to achieve decisive strategic, operational and tactical supremacy on all levels of the military and non-military conflicts. Achievement of NEC capability will enable radical increase of quality of the command and control, decision-making process and operational effectiveness. It enables an effective use of combat means at right places for a rapid and precise achieving of the required operational goal. Acquisition of NEC capabilities is a basic condition for achieving the required operational capabilities of the Czech Armed Forces necessary for their active participation in future coalition operations. The achieving of NEC capabilities has a long-term character. Currently, they elaborate the phase of NEC development till the year 2001 in detail and the expected key points for next phases. The expected process of achieving the NEC capabilities is schematically shown in the following picture:



The following capabilities form the substance of NEC:

- Information superiority based on gathering of all the data on the battlefield from all sensors (ground, air and intelligence) and fusion of these data into the formats according to the needs of users and transmission of these information to the users with an objective to intermediate the information concerning the situation on battlefield to the units on all common levels;

Tactical command post

- Knowledge superiority which enables the commanders and headquarters an effective comprehension of the situation on the battlefield. All the authorized persons will have an access to the current information and knowledge all the same where they are saved;
- Decision making superiority, based, beside the knowledge superiority, on the equipment of the headquarters with up-to-date instruments of decision-making support which are able to suggest and analyze the possible solutions;
- Immediate publishing of clear and lucid intention of the commander which enables all the subordinates to understand their tasks and to execute them independently and initiatively. It enables a permanent survey of the situation on the battlefield, neighbours and synergistic factors resulting in an effect of self synchronisation and in achieving the required supremacy.

Communication Supervision Room of Czech Armed Forces

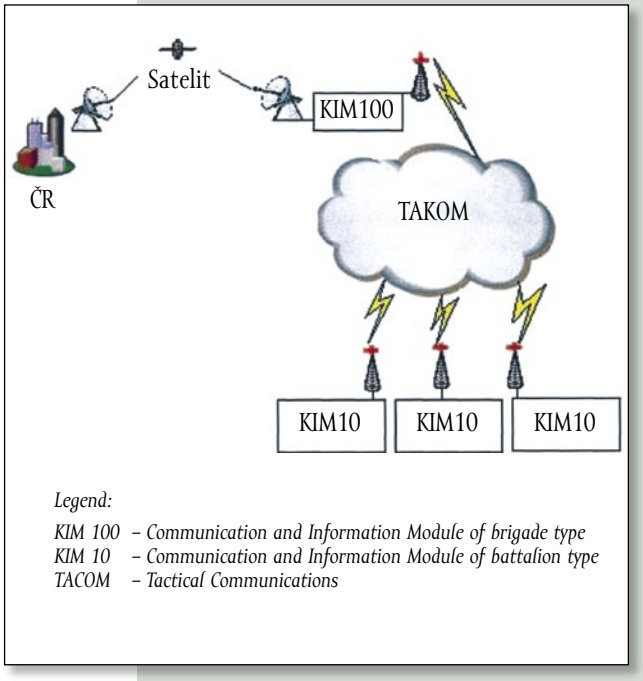
The first necessary condition for the achievement of the NEC capabilities consists in the development of sufficiently robust integrated environment securing the interconnection of sensors, weapon systems, means of impact and command and control systems into a unified communication and information network, which will provide information services, security services, network control services and other services necessary to achieve the information superiority with the interfaces with coalition systems. Development of the integrated NEC environment will make use of the existing and planned communication systems (CIS) in maximum extent.

The used communication and information systems have to provide the following activities:

- Development of a distributed network with trouble-free connectivity
- Utilisation of different types of transmission media with the required width of the transmitted band;
- Interoperable connection of the terminal systems and devices;
- Depending on the progress of the development, a backward compatibility with the introduced systems;
- Uniform transmission environment based on IP Protocol;
- Secure Communication Interoperability Protocol (SCIP);
- Mobile communication infrastructures; support to the mobility of terminal systems and devices;
- Rapid self-recovery of the system (restart of the system);
- Creation of the interconnection of 1:n type (broadcast, multicast);
- Required quality of services;
- Adaptability;
- Resistance against electronic warfare and against the effort of the enemy to disturb the communication and information systems;
- Data transmission on a real-time basis;
- Availability of services.

Development of the integrated environment is not an objective but only an instrument for the subsequent achieving of the NEC capabilities and, therefore, it must be accompanied by corresponding changes of operational processes, procedures, tactics and organisational structures.

Solution of the task of provision of the communication and information support to the detached units in the area of operation of distant missions, executing the tasks connected with peacekeeping operations and providing the communication and information support to low intensity operations management. For this reason, it proves to be suitable for the mentioned operations to use easy applicable, so called "expeditionary"options of the Operational-Tactical Command and Control Land Forces. Efficiency of the employment of the units securing the peacekeeping mission in the area of their responsibility depends, beside other things, on the level of their communication and information support. Minimum function represents the possibility of data provision and audio communication at least in one network. The KIM 100/100 communication and information modules



Legend:
KIM 100 – Communication and Information Module of brigade type
KIM 10 – Communication and Information Module of battalion type
TACOM – Tactical Communications

KIM 100/10 communication and information module

proved to be a suitable solution of the "expeditionary" option of the communication and information systems.

In this sense, the communication and information system provides the following activities:

- Signal security and non-secure automatic telephone communication in the mission area;
- Signal security and non-secure LAN data network of the mission command and interconnection to WAN;
- UHV radio communication with the units operating in the area of deployment of the mission, using UHF, SW and satellite voice and data transmission communication with the detached units of the mission;
- Internet (public Internet services).

The core of the concept consists of two communication and information type modules: KIM 100 of a brigade type intended for the commands of the missions and KIM 10 – for detached units. They created a base of the whole system containing necessary communication and information technologies necessary to cover the operational requirements put on the communication and information provision in the area of deployment, creating the conditions for employment of application program equipment of the Operational-Tactical Command and Control System of the Low Intensity Operations, supporting the activity of the commanders and headquarters of the mission. Design and development of the KIM 100 and KIM 10 communication and information systems are solved as a relieved option of the Operational-Tactical Communication Systems (OTCS) of mobile workplaces, applying its permanent nature in the given area. The concept of introduction of new models expects that the purpose-built systems will be applicable without problems even in other missions or after accomplishing the missions, in the project of Operational-Tactical Command and Control System of Land Forces and the Operational-Tactical Command and Control System of Low Intensity Operations. The suggested solution is interoperable with the elements of the existing architecture of OTCS (based on ISDN network technology). At the same time, it anticipates the strategy of OTCS upgrading, aimed at introduction of IP architecture with regard to the development of data services or VoIP. Suitable configuration of individual elements can provide serviceability in the network architecture of ISDN or IP regimes for both the KIM 100 and KIM 10 systems.

The speed of urgent development in the sphere of electronics and information technologies is so astonishing that it is impossible to respond by introducing each new product into the armament. The concept of development and upgrading of the communication and information technologies anticipates gradual introduction of the up-to-date technologies in connection with the actual needs of troops and with the emphasis laid on compatibility within the Alliance Forces.

AFTERWORD

You have finished reading of the book dedicated to the ninety-year history of Signal Corps. During the preparation of this book we were striving to find the position of the Corps in the individual periods of historical development of the Czechoslovak and, later on, Czech Armed Forces. Signal Corps was always ready, in spite of various problems, to perform the allocated tasks. It is proved by the foregoing pages describing the activity of Signal Corps since its modest beginnings till the present days when the members of Signal Corps successfully perform the tasks in peacekeeping missions abroad, during natural disasters as well as at the other activities of the Czech Republic's Armed Forces.

History of Signal Corps is very rich. After all, it represented nearly 1/6 of the strength of the whole Armed Forces. During its ninety-year existence, it used a wide scale of signal means to provide communication for the command. An array of valuable exhibits of historical signal equipment can be found in the collections of Military Historical Institute, Prague. We tried hard to make the widest possible use of this material in our publication and, in some measure, to set up a basic catalogue of this unique collection. We are sure that it would be useful for both the present and future generation to elaborate a picture book with technical data and description of use of the individual types of signal equipment. For this reason, we do not consider the mapping of the history of Signal Corps accomplished by this book. Its limited extent has not allowed dealing with lower-level units, schools, training, etc. in more details. The relatively short period of time, within which the book was written, did not allow more detailed discussion about a number of the matters which would also deserve our attention. We believe that the 100th anniversary of Signal Corps will give more time and space for a completion of this publication, namely its enlarging by the already mentioned training in military schools as well as e.g. area of cryptographic communication, participation in the exercises and evaluation and description of the problems with the dividing the signal centres into mobile and main part at the front and army signal centres.

We would wish this publication to attract your attention and to become not only a look-back at the hard work exerted by the past generations in providing the communication but also an inspiration for the new generation of signalmen, information and security specialists and the other people who provide the command.

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Archival Collection: Independent Radio Telegraph Company
Archival Collection: 1st Radio Telegraph Company
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Archival Collection: Italian Legions – 6th Czechoslovak Division
Archival Collection: Supreme Command of Czechoslovak Troops in Slovakia
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Archival Collection: Military Technical Workshops
Archival Collection: Military Telegraph School
Archival Collection: Central Telegraph School
Archival Collection: Transportable Columbary No. 22
Archival Collection: Main Military Telegraph Depot
Archival Collection: Telegraph Store No. 2
Archival Collection: 1st Telegraph Battalion Headquarters
Archival Collection: 2nd Telegraph Battalion Headquarters
Archival Collection: 3rd Telegraph Battalion Headquarters
Archival Collection: 4th Telegraph Battalion Headquarters
Archival Collection: 5th Telegraph Battalion Headquarters
Archival Collection: 6th Telegraph Battalion Headquarters
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Archival Collection: Czechoslovak Military Mission for Balkans, Near and Middle East
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Archival Collection: 1st Czechoslovak Independent Battalion in the U.S.S.R.
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