

## THE CZECH ARMED FORCES DEVELOPMENT AND TENDENCY IN CONTAINERIZATION

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**Abstract:** *The article is aiming towards explanation of the beginning the Czech Armed Force containerization, systemic and standard measures realized in defence resort due to containers implementations. There are described containerization phases and implemented material handling equipments. The part of the article is also referring to financial process demandingness. The concept of the containerization in operation is also illustrated via graphic presentation. Authors suggest the main direction in containerization development in the Czech Armed Forces till 2015.*

**Keywords:** *Container, Container Transport System, Container Handling Equipment, Containerization, Hook Lift, Logistic Support, TATRA vehicle, the Czech Armed Forces.*

### 1. INTRODUCTION

Experience of NATO member's states armies as well as the Czech Armed Forces (CAF) so gained in peace-keeping and humanitarian operations makes it clear that one of the decisive areas for sustainment activities of units is their logistic support. The logistic support realization is among others also materiel handling technologies tasks. The optimal solution is use transport and material handling system which integral elements are standardized unit load at combined transportation.

The container transport system implementation makes possible more efficient dispatch, deployment, and continuous supply declared units during any mission type. The performance of the any special tasks would be difficulty without containers using. The containerization is promoted not only for military materiel transport. There is tendency towards special containers and container medium case bodyworks with parameters electromagnetic compatibility.

The CAF containerization aim is realization of the Force Goals - EG 4201 and EL 4211 towards CAF units logistic support realization outside of the Czech Republic

territory in the framework of the operations support Article 5 and non-Article 5.

### 2. THE BEGINNING OF THE CONTAINERIZATION IN THE CZECH ARMED FORCES

The opinions of containerization using in military conditions has had historical development and it has different attitude not only in Europe armies but also in CAF. The beginning of the container transport system development was dated in Czechoslovakia armed forces in 1974.

Most widespread used container was container type 1C (hereinafter referred to as "ISO 1C") in modification Gt3 or Gtt3. Subsequently in following period become a practice also shelters with corner element in ISO 1D proportions.

Supply of spare parts and assortment for repairing weapon of war supply was realized since 1978 via containers ISO 1CX in modification REKAR-P 6. Another transport equipments was load carrying platform NPN-12 (platform container ISO 1CX with solid front). It is impossible to miss out fuel reservoir container NK 20. Mentioned containers served only as a wrapper during

transport realization from producer to division storage.

Among first military container truck for containers transport ISO 1C were containers carrier TATRA T-138 6x6 and later on T-148 6x6.

These carriers were used since 1975. Saddle side container automatic feeder HLS 200, 78/TK (HLS 200, 78/T) and containers stand up MPS 75-02 with electromechanical traction were introduced in the same year. Towards establish semi-trailers was in 1981 supplemented series of the towing trucks ŠKODA 100,47 till 110 and TATRA T-148 NTt VM 4x4 with possibility to use equipment in field conditions.

The following equipments for containers development were implemented to the army forces mobile cranes TATRA T-815 (6x6) AD-28, slinging and tie-down facilities for lifting containers Z 20 LRT (PARAČ) and rubber-tired gantry crane PD38 in 1986, the container carrier ISO-1C TATRA T-815 PR 2 (6x6) in 1990.

The attempt about the systematic solution of the containerization in the armed forces did not achieve successful result. The exception was only containers transport system realized in Ministry of Defence Tank-Automotive Administration Centre but due to specific conditions the system showed several restrictions.

Due to CAF participation in peace and humanitarian operations in 90<sup>th</sup> the containerization process has become again in the centre of gravity. The CAF purchased limited number of the container carrier TATRA T-815 (8x8.2) equipped with MULTILIFT MK-IV hook lift with an adapter – “H” frame (hereinafter referred to as “TATRA 8x8 Multilift”) and demountable load carrying platform (hereinafter referred to as “FLATRACK”) designed for containers ISO 1C attachment.

Simultaneously were purchased special containers trailer PV 18 LP, in order to realized containers ISO 1C’s loading and unloading, side loader (type Klaus Kranmobil KM 24E -293/S) on the chassis VOLVO FL 12 (8x4) and in the 1998 the same type on the chassis TATRA T-815 (8x8.2).

### 3. SYSTEMS AND STANDARDIZATION MEASURES

Within the scope of preparations CAF entering to NATO has been adopted by necessity ensured interoperability technical base for containerization development. The main aim was equipped logistic units assigned to NATO forces by modern military container (loader) trucks and other MHE with ability to act in hard and unpaved surface.

Due to realization of the mentioned goals first of all the systematic conditions were draw up. The pilot project “*The Czech Armed Forces containerization*” was agreed in 1997 and the project suggested developed directions. Capital system of the financial program in the area acquisition and renewal container handling equipment, military container trucks and other MHE was implemented in 1998 year. The second condition for successfully realization was existence of the responsible authority for developing of the technical solution containerization equipments, or more precisely area MHE in conformity with NATO standardization agreement. The Ground Forces Military Research Institute was established as responsible authority. Based on mentioned were decided to establish container transport system on the basis ISO containers, special military containers ISO/DIN (MILKON) and FLATRACKS.

In process of period 1998–1999 came into service containers ISO 1C with non-demountable equipment ANCRA for transport and storage pallet and in-bulk materiel, cooling container in order to keep-cold provisions (container ISO 1C Thermo-King KB-98 and FLATRACK 20M and 20T in order to realized materiel and damaged armament and military vehicles. Toward the end of the 1999 year came into service ISO 1C quarter containers, ISO 1C lavatory containers, cooker containers (container ISO 1C VARNA A+B), dinning hall containers and ISO 1CX catchments container. Since year 2000 the development has been continuing and new types of ISO1C containers come into service - drinking water reservoir container, source and distribution system in container ISO 1C

(ZRS 160 KW), ISO 1C monitoring and office container, field hospital containers (operating hall, dentist ambulance, biochemical and haematological laboratory and the others specific medical ISO 1C containers (ENT ambulance, X-Ray workplace, sterilization room, examination room, pharmacy).

During period 1998 do 2002 was invested 6 300 000 \$. Due to changes of the financial system in defence resort in 2001 was not realized any acquisition.

The second stage of containerization development has begun in 2003. The priority subprogram - containerization was revised and replenish due to CAF reform. A new approach was declared in containerization in regard to limited financial means (focus on utilization abroad). In regard to the reform of the ACR, **the number and dislocations** of container handling equipments, military container trucks and other MHE was changed. An acquisition of containers was determined on the basis of ISO standard and **dimension ISO 1C**. A minimal stacking capability of container is 4 layers. Other special containers put into organizational equipment in a very limited extent. It means only for performing specific tasks when it is impossible to use the dimension of ISO 1C. During 2003 year ISO 1C intensive care unit containers was implemented to the field hospital structure. A total investment was only \$5 000 000 during 2001–2004. During period 2005–2007 was on the opposite side invested \$60 000 000 (purchasing of material for the logistic support brigade).

Container handling equipment and containers were purchased in mentioned types. The emphasis was put on replenishment TATRA 8x8 Multilift and container trailer PV 18 LP. In order to accomplish needs for declared NBC units was newly put into service side-loader **Steelbro** with type labelling SB 300/61 on the chassis TATRA T-815. Analogous to military containers trucks (ISO 1C are used also container carrier TATRA T-815 PR2 (6x6.1) and TATRA T-815 (8x8) VP 20. In order to realized transport and manipulation Shelters has come to service TATRA T-815 VPR 8 (6x6.1R).

#### 4. CONCEPT OF CONTAINERIZATION IN OPERATION

The decisive executive logistics element during operation is National Support Element (NSE). In the framework of the CAF NSE is designated from 14<sup>th</sup> Logistic Support Brigade. The main NSE's task is to develop a logistics base (LOGBASE) and realized 2<sup>nd</sup> level of the logistic support.

The primary unit load transferred from the Czech Republic territory, from sea port of debarkation (SPOD), rail port of debarkation (RPOD) and air port of debarkation (APOD) to the LOGBASE in the joint operation area is consider freight container for military supplies ISO 1C. The supply of the forward distribution point or deployment units with the help of the containers ISO 1C will be realized only in specific cases (according operation types and factual conditions). Containers load unit has to be configured in distribution centre (storage) CAF with aim to hand out materiel according partial units (be destination to battle squadron, repair squadron or spare parts set in order to realized repair existing types of vehicle /devices). The assembling and wrapping will be used first of all unrepeated pallets unit load, unrepeated paper wrapping – standardized papers boxes (except ammunition).

Pallets with materiel will be transfer on FLATRACKS via TATRA 8x8 Multilift to the forward support group or just on the middle terrain trucks equipped by hydraulic arm, in case of need TATRA 8x8 VP 20 to the deployed forces, the schematic diagram is on the following picture.

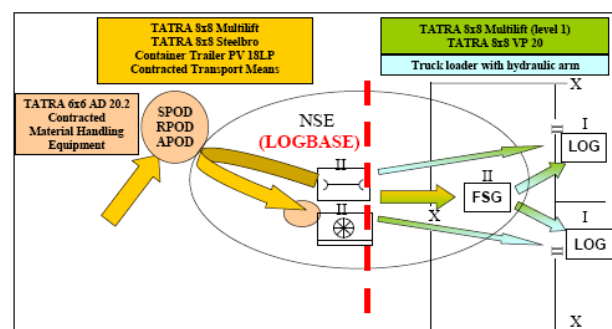


Fig. 1 Outline Containerization Concept in Joint Operation Area

## 5. THE PROPOSED CONTAINER DEVELOPMENT CONCEPT IN THE CZECH ARMED FORCES

Support Policy Division Ministry of Defence of the Czech Republic as a superintendent activity development in CAF container development system suggested changes in 2006 year in “*Middle term plan activities and development in defence resort*”. Support Division detailed tasks and determined evaluation criteria.

The aim was realized development and research activities integration in the acquisition, and purchase processes 2<sup>nd</sup>, 3<sup>rd</sup> and higher level of the container devices in the 10 years horizon.

One of the main priorities is 1<sup>st</sup> logistic support level realization detached tasks forces rough and hardened equipment. The assumption is put into service new type military one-arm carrier and container loader truck equipped protection against firing small arms, with lowered cab and with possibility to attachment small arms.

The number of the purchase was determined to 69 pieces. The realization sequence in order to improve efficient transport network is purchased and complete FLATRACKS in the number 96 pieces. Containerization development assumed to year 2015 implementation in following equipments:

- 3 pieces rough terrain container handler for possibility to handle with fully loaded container ISO 1C and FLATRACKS on the unpaved surface (MHE used in LOGBASE and field storages detached task force);
- 2 set universal mobile packaging line in order to supply activities brigade tasks force units. The packaging devices integrate to distribution and NSE structure. The mobile packaging line is field workplaces in container ISO 1C with ability to realized efficient materiel preparation (configured unrepeatable EUR pallets) with main tasks redistribution materiel to battle unit on FLATRACKS or platform vehicle;

- 2 pieces reach stackers; these MHE will be located in transit containers centre (distribution centre, discharge point) with ability to stackable pallets till 4<sup>th</sup> level.

The partial priorities remains complete numbers of the container side-loaders and container trailers in unit's structure, in case of need proposed container equipments will be replace by older type's of cranes, towed trailer and single-purpose devices.

Complete the car fleet in military rescue units via mobile crane TATRA T-815 (6x6) AD.20.2. According regulation it is forbidden to continue in development and modernization all types of shelters – medium container (sandwich) box body and implement to the CAF structure units, which is impossible handle with hook-loader and side-loader. The unsuitable are first of all container coachworks types which are portable only via crane. During following development process CAF improve ability to adjust body vehicle to the airlift transport above all in the car fleet assigned to the multinational operations. The reproduction of the property connected with container development will be solving till 2015.

## 6. CONCLUSIONS

Containerization within the CAF does not represent only purchasing of containers but it is also a set of measures with the objective to solve system and integration coherence of a technical and technological base within transport and supply system. A successful fulfilment of containerization objectives of the CAF depends directly on the amount of allocated financial means in the future.

Within the scope of allocated financial budget will be realized in priority replenishment Logistic Support Brigade (development middle truck company and transportation battalion headquarters). The creation units will be detached to realization NATO tasks and basic logistic support transport capacity for declared CAF units.

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