

ISSN: 2450-6869

eISSN: 2719-6763

No. 10, 2020

DEFENCE SCIENCE REVIEW

<http://www.journalssystem.com/pno/>

DOI: [10.37055/pno/1034494](https://doi.org/10.37055/pno/1034494)

Current Problems of Joint Fire Support in the Polish Armed Forces

Received: 2021-01-25

Accepted: 2021-03-16

Final review: 2021-03-16

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Keywords:

JTAC – Joint Terminal Attack Controller, TACP – Tactical Air Control Party, JFS – Joint Fire Support

Abstract

The aim of this paper is to attempt to identify the main challenges faced by the Polish Armed Forces in the area of Joint Fire Support. The publication will present Joint Terminal Attack Controller's point of view on the problems of Joint Fire Support in the Polish Armed Forces. Due to the complexity of the problem, the authors decided to limit the scope of presentation to the most visible difficulties in specific services. The views presented here result from empirical research based on participatory observations that were conducted during numerous national and international training operations organised in Poland and abroad and non-categorised interviews with the JTACs from the Tactical Air Control Party Central Group and the Tactical Air Control Party Training Center in Military University of Aviation in Dęblin. The publication will present Joint Terminal Attack Controller's point of view on the problems of Joint Fire Support in the Polish Armed Forces. For linguistic purposes, the terms controller and navigator were used in this text as synonyms of the JTAC acronym. Due to the complexity of the problem, the authors decided to limit the scope of presentation to the most visible difficulties in specific services. For linguistic purposes, the terms controller and navigator were used in this text as synonyms of the JTAC acronym.

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Introduction

Joint Fire Support (JFS) generates numerous challenges for the forces that execute it. The fact that at least two services of armed forces are involved in its realisation leads to major interoperability problems that result from the differences in techniques and operational procedures of respective services or branches. The challenges are very often easier to identify by a cooperating or supporting unit rather than the element where they actually occur. For the purposes of the this paper, the following classification of challenges was applied: the main criterion was the type of armed forces and type of troops in which the given issue exists. The second, subsidiary indicator was the division into areas: organisational, training and procurement areas within the criterion of the involved service. At the same time, the authors intentionally focused on the two first areas, as introducing improvements there would generate significantly lower costs.

The aim of this paper is to attempt to identify the main challenges faced by the Joint Fire Support in the armed forces. The publication will present the point of view of the Joint Terminal Attack Controller on the problems of Joint Fire Support in the Polish Armed Forces.

Challenges related to Joint Fire Support in the Air Force

The challenges related to JFS faced by the Air Force will be discussed first. This decision results from the critical tone of this publication. Before we discuss the speck in other armed forces' eyes, it is worth focusing on the log in the eyes of the troops to which the authors belong.

The main challenge faced by the Air Force is the absence of an Air Force Air Request Net, combined with the lack of clear principles of commanding air force involved in the air aspect of Joint Fire Support, i.e. Close Air Support (CAS) (Ministerstwo Obrony Narodowej. Centrum Doktryn i Szkolenia Sił Zbrojnych, 2014, pp. 64-66). For example, in the U.S. Armed Forces, this type of net is managed by the liaison element of the air force operating on the level of military corps. Unfortunately, on the level of the component command these issues have remained unsolved for years. The liaison element of the Air Force is the Air Operations Coordination Centre (AOCC)². Although this unit received the required communication equipment that is compatible with the systems used by the TACP, it does not have the competences required to command the Air Force resources assigned to CAS. Peacetime trainings and exercises prove, that it is impossible to call for immediate or ground

² Main liaison element of the Air Force to Army units from the level of battalion to division level.

alert CAS with the existing communications systems. The latter task was realised with the use of mobile phones. During a high-intensity military conflict, the use of this type of communication will be impossible, or, in other circumstances, the position of mobile phones would most likely be located by the enemy and might be used for identifying and locating command and control stations and eventually attacking them. There is still a long way ahead with introducing a unit responsible for a real-time coordination of the air support operations. However, the development and implementation of the Standing Operating Procedure (SOP) that standardises the cooperation between the platform (pilot) – JTAC and command authorities should be considered as a positive signal of the cooperation between command units and controllers.

Another important problem is the limited possibility of controlling aircraft involved in CAS that use the low level attack tactics (Ministerstwo Obrony Narodowej. Dowództwo Generalne Rodzajów Sił Zbrojnych, 2019, p. 4). This attack type is used in order to obtain an advantage in the air while operating in an environment highly saturated with enemy anti-aircraft defence elements, i.e. so-called *high-threat environment*. It consists in conducting attack on a ground target from the lowest possible altitude. This brings not only in an element of surprise but results also in a very short time of exposure of the aircraft to the enemy anti-aircraft defence tracking systems as a result of very low altitude of flight combined with the high velocity of the CAS³ platform. Such attack tactics constitutes a major challenge both for the JTAC and for the pilot due to the very short time for both: acquisition of the target by the pilot and granting weapons release clearance by JTAC. Only perfect real-time communication and excellent skills of the navigator and pilot allow to perform such attack effectively (Zajkowski, 2018, p. 66). Air-to-ground communications is based on ultra-short frequencies, and the requirement of mutual line of sight between the aircraft and controller radio antennas has a significant influence on limiting its range. During low-level guidance to targets located deep inside the enemy formation, this requirement will be extremely difficult to meet. The problem could be solved by using retranslators mounted on balloons or unmanned aerial vehicles (UAV) operating from above friendly positions. Placing the retranslation station at the altitude of approx. 500 m (1800 feet) above ground level should ensure communication with the aircraft at the distance of approx. 40 km. If equipped with the appropriate communication devices, such station would ensure communication throughout the whole Brigade area of reconnaissance responsibility.

³ Each aircraft that conducts attacks on ground targets as part of Close Air Support.

The last discussed problem concerning the Air Force is the level of training of the JTAC. It is currently inadequate (too high) for the possibilities of the supported Ground Forces. The conditions for performing the tasks entrusted to navigators during live training fall into or barely exceed the level defined as *Basic CAS*, i.e. the level of the simplest task conducted during JTAC courses. Combined with the insufficient number of controllers in the Polish Armed Forces, this generates a problem with the proper allocation of available resources. Due to the requirements of international standardisation documents signed at the level of the Ministry of National Defence, the JTAC training level cannot be lowered or limited. There are two possible approaches to overcoming this challenge. The first one consists of improving the level of organisation and training of the elements of ground troops that are involved in Close Air Support, first of all the commanders and the staff of respective headquarters. This would generate opportunities to use the controllers' competences to the full extent. The second solution is to introduce a national license for controllers who, conducting basic CAS in an airspace supervised by a qualified JTAC, would be able to obtain the experience necessary to reach the JTAC level (Zajkowski, 2017, p. 94).

Challenges related to Joint Fire Support in Ground Forces

Artillery

The first and currently the main challenge faced by the artillery in terms of JTAC is the insufficient level of interoperability of artillery between units or tactical groups. This results from the absence of 'a body' with the competences and possibilities of a Joint Fires Support Element – JFSE (North Atlantic Treaty Organization, 2015, p. 5) on specific levels of command. Such unit, organisationally adapted to the assigned tasks, should be responsible for the overall planning, coordination, synchronization and use of the allocated resources conducting JFS on all ground targets. At the same time, the JFSE is a central body responsible for resolving conflicts, coordination and integration of specific elements engaged in JFS, including CAS. In order to perform JFS efficiently, all involved units must have access to the necessary real-time information, considering in particular timely reconnaissance data. This results from the very high dynamics of contemporary battlefield, especially with respect to Targets of Opportunity Unplanned and to Targets of Opportunity Unanticipated. As it seems, mainly due to organisational reasons (lack of a single information acquisition point, such as the JFSE), obtaining data (such as: gun-to-target line, time of flight, max ordinate, min

ordinate, ordinate X⁴) from subordinate units on a brigade level is hindered, which might affect the performance of fires by individual elements of the JFS. These data are necessary for the effective integration and synchronization in order to achieve the synergy effect. While supported by Air Force aircraft using stand-off tactics, this problem may be solved in most cases by an appropriate division of the airspace, e.g. with the use of Coordinating Altitude) (Joint Chiefs of Staff, 2014, pp. III–6), this is almost impossible if army aviation or low-level tactics is used. The measure that may be used then is time separation of specific airspace users. However, this can hinder obtaining simultaneous effects of operation. This problem may be solved by using airspace segments that were used and tested during military missions in Iraq or Afghanistan.

The second challenge, closely linked to the first one, is the absence of a network for calling for fire support on the tactical level. Such network, available for army commanders at all levels, reconnaissance elements, JTAC, and JFO, managed by the JFSE, would enable flexible use of adequate support measures for specific sub-units. The lack of such network leads to the fact that procedures of requesting fire support are often realised in already overloaded command net.

The third challenge consists in the current model of a placement of Joint Fires Observers – JFO. For the controller, a JFO is the additional eyes and ears on the battlefield, multiplying the possibilities to perform attack from the air. However, positioning a JFO in the group of first-line units, does not extend significantly JTAC capabilities. The same tasks (target observation and providing its position) may be provided by any soldier on the ground without significantly affecting the timeliness and the quality of the performed attacks. From the point of view of the navigator, the best position for JFOs properly equipped to use Tactical Air Direction net and with means to identify goals that may actually improve the effectiveness of air attacks are reconnaissance units. It should be noted that, due to the target characteristics, the sub-units of the enemy located deep inside the formation are the most vulnerable to the attacks.

Army Aviation

As far as the Army aviation is concerned, one may risk the statement that we are dealing with a collapse in the equipment and organisational areas. Attack and multitask helicopters that are currently in possession of the Army aviation have some serious

⁴ There are no Polish equivalents known to the authors.

deficiencies – starting from the lack of proper communication equipment, in particular for air-to-ground communications, through the absence of modern avionics, to the weapons, which are unsuitable for use even in low-intensity conflicts.

In the organisational areas, the possibility of commanding the Army aviation without the TACP seems doubtful. An example may be one of the exercises during which it was impossible to obtain information about the use of helicopters from the level of the respective command units. Apart from Tactical Air Direction (TAD) net nearly the only devices used for arranging cooperation were again mobile phones.

Reconnaissance

Reconnaissance units should be prepared for close co-operation with attacking elements in the area of reconnaissance responsibility of the given level of command. The author's experience show that arranging the details of cooperation with reconnaissance unit commanders operating deep in the enemy lines does not require particular effort. The cooperation during the attack does not pose any significant problems, either. However, it requires using a command (or reconnaissance) network.

The main challenge is the lack of the capability of reconnaissance units to generate an appropriate category of coordinates for strike purposes. If unguided munitions are used, low accuracy of coordinates may increase the amount of ammunition necessary to complete the task. On the other hand, if guided munition is used, the quality of coordinates affects the possibility to perform the task at all. As far as Close Air Support is concerned, this applies to the method of attack Bomb On Coordinate (BOC) and the *stand-off* tactics, i.e. dropping weapons from outside of the tactical range of the enemy air defence. The Polish Air Force have adequate weapons to use this method of attack. An additional advantage of this type of bombs is the fact that they are less sensitive to the negative weather conditions than other weapons, simplicity of the coordination between a JTAC and a pilot and relatively low guidance time. However, precise target coordinates are required, ideally categories 1 or 2 (Joint Chiefs of Staff, 2019, pp. III–38). Achieving such capacity requires some changes: introducing the appropriate equipment for detection and location of targets, that may generate adequate accuracy of coordinates or introducing UAV (Bielawski, Rządkowski and Perz, 2018) that have such possibilities, with certified and properly trained personnel.

The second issue faced by reconnaissance units is obtaining the possibility to conduct Terminal Guidance Operations (TGO), consisting of target identification and target marking. To this end, the recommended solution would be to place Joint Fires Observers in the

organisational structure of reconnaissance units. Obviously, it would be necessary to equip those units with proper communications devices to use TAD and various devices for target marking and designation.

Other significant issues

Polish documents do not provide clear procedures for the responsibility assignment during CAS attacks. English doctrine documentation (Joint Chiefs of Staff, 2019, pp. III–38) contains two terms: *target engagement authority* and *terminal attack control*. The first one refers to the competence of the commander to give an order to use a specific type of weapon on the battlefield. The details concerning the level, military rank, tactical situation, and specific types of weapons or platforms should be defined by the Rules of Engagement (ROE). The second term refers to the authorisation granted by a commander to a JTAC to control the manoeuvre of and grant weapons release clearance to the attacking aircraft. This is a double safety mechanism protecting against the negative consequences of using aviation weapons on the battlefield. The controller cannot use the weapons of the supporting aircraft without being commanded to do so by the commander, while the latter (who does not have the required specialist knowledge about the characteristics and tactics, techniques and procedures for air attack) does not have the authority to directly order the pilot to attack the target. Both of them, a supported commander and a JTAC, may abort the attack. This means that the assignment of responsibilities should be as follows: the commander is responsible for the tactics (type of control and attack method) as well as for the consequences of the attack and a specific weapons effects, as recommended by the JTAC. The navigator, on the other hand, is responsible for transforming the tactical task set by the commander into a fire mission for the pilot. The commander is responsible for the achieved effects of the attack insofar as they are compliant with the controller's recommendation. The pilot is responsible for attack compliant with the task communicated by the JTAC in the *Game Plan, CAS Brief and Restrictions*⁵. Regulating the responsibility in a clear and precise way will have a positive influence on the quality and speed of cooperation. It will also release the personnel involved in JFS from the paralysing fear about legal responsibility. This will be especially important in attacks with a high probability of Collateral Damage or in Danger Close situations. The current national regulations, which state that: "*All the personnel involved in the planning, preparation, and execution of CAS shall be responsible for the efficient and safe course of the realised*

⁵ Elements of the Close Air Support procedure.

ventures” (Ministerstwo Obrony Narodowej. Centrum Doktryn i Szkolenia Sił Zbrojnych, 2014, p. 50) are insufficient in this respect.

A major challenge for all the entities engaged in Joint Fire Support is the issue of improving the situational awareness and skills of commanders and their staff in this respect. One may state that a wide spectrum of Joint Fire Support measures: attacks conducted with the use of aviation, artillery, electronic warfare and loitering munition, and, in the future, Unmanned Aerial Vehicles, should be a main tool in the hands of a commander that allows him or her to influence the situation on the battlefield (Zajkowski and Będkowski, 2019, p. 206). Unfortunately, currently it is not the case. This is particularly visible in the division/brigade level orders. The comparison of the annexes created for the purposes of reconnaissance and attack leads to the conclusion that they are incompatible. Thus, it would be extremely difficult to achieve a synergy effect. The main challenge (but probably the easiest to correct) lies in the training area. The last few years have brought some progress in this field, manifested in: the presence of junior officers at the course on aviation terminology at the Military University of Aviation in Dęblin, the Joint Fire Support organised by the Military University of Land Forces in Wrocław, the inclusion of JFS issues in the curriculums of the War Studies University or the development of the JFO Programme in the Polish Armed Forces. However, this is still insufficient. JFS problems should be an important element of qualification courses starting from the level of battalion staff and company commanders. The headquarters at specific echelons should be able to develop and acquire the necessary Joint Fire Support measures independently, without the help of external experts. An exception here would be Close Air Support, which requires a JTAC for each attack. However, land forces’ JFS planning and execution of elements such as CFF, CCA⁶ procedures, reconnaissance and loitering ammunition in combination with a ground manoeuvre, should become a standard.

This section will also discuss the attitude of soldiers realising JFS tasks. Soldiers often tend to practice only the things they already know. They are noticeably unwilling to practice or train elements that may prove unsuccessful. A notable exception is the attitude of most JTACs and F-16 pilots, who are eager to practice issues that are new, difficult, unknown or hardly known to them and are open to criticism, even if it is expressed in “technical military language”. Without practising elements that cause problems, without being confronted with risks, suffering failures and drawing conclusions, we will be unable to achieve the appropriate level of preparation for joint operations.

Conclusion

Joint Fire Support requires actors from various services to perform interoperable actions in a complex and dynamic environment. A strict integration of actions in time and space is highly required. The above considerations demonstrate that the easiest (but not necessarily easy) way to improve the capability of troops to conduct JFS is to improve the level of training and introduce organisational changes consisting of assigning the adequate competences to units involved in managing this type of tasks. This refers particularly to creating (assigning the appropriate competences and reorganising the existing units) the body being the equivalent of the Joint Fires Support Element and the activation of a unit at the Army Component Command responsible for a real-time integration and management of the assigned CAS platforms to the support of ground troops. Introducing new, properly armed attack and multi-task helicopters is necessary for the Army aviation to recover from the current collapse.

The possibilities may also be improved by introducing changes in the equipment. This refers to introducing modern devices for digital communication, precise rangefinders for reconnaissance units, UAVs and loitering ammunition.

⁶ CFF (Call For Fire) – procedure of calling for fire from the battlefield, CCA (Close Combat Attack) – helicopter fire support.

Bibliography

Bielawski, R., Rządkowski, W. and Perz, R. (2018) 'Unmanned aerial vehicles in the protection of the elements of a country's critical infrastructure – selected directions of development', *Security and Defence Quarterly*, 22(5), pp. 3–19. doi: [10.5604/01.3001.0012.6422](https://doi.org/10.5604/01.3001.0012.6422)

Joint Chiefs of Staff (2014) *Joint Publication 3-52 Joint Airspace Control*. Washington: Joint Chiefs of Staff online. Available at: https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_52.pdf.

Joint Chiefs of Staff (2019) *Joint Publication 3-09.3 Close Air Support*. Washington: Joint Chiefs of Staff online. Available at: https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_09.pdf.

Ministerstwo Obrony Narodowej. Centrum Doktryn i Szkolenia Sił Zbrojnych (2014) *Bezpośrednie wsparcie lotnicze i izolacja lotnicza w operacji połączonej DD-3.3.2(A)*. Bydgoszcz: Wydawnictwo CDiSSZ.

Ministerstwo Obrony Narodowej. Dowództwo Generalne Rodzajów Sił Zbrojnych (2019) *Instrukcja certyfikowania i kwalifikowania wysuniętych nawigatorów naprowadzania lotnictwa w Siłach Zbrojnych Rzeczypospolitej Polskiej DU-3.3.2.2*. Warsaw: Wydawnictwo MON DG RSZ.

North Atlantic Treaty Organization (2015) *NATO - AARTYP-5 NATO Fire support doctrine*. Brussels: NATO Standardization Office.

Zajkowski, R. (2017) 'Technologie, techniki i wyposażenie stosowane przez wysuniętych nawigatorów naprowadzania lotnictwa (WNNL) - Joint Terminal Attack Controller (JTAC)', in Bielawski, R. and Grenda, B. (eds) *Bezpieczeństwo lotnicze w aspekcie rozwoju technologicznego*. Warsaw: Wydawnictwo ASzWoj, pp. 85–102.

Zajkowski, R. (2018) 'Nowe oblicze wojskowych służb ruchu lotniczego - jednego z filarów bezpieczeństwa w systemie zarządzania ruchem lotniczym', in Bielawski, R. and Grenda, B. (eds) *Bezpieczeństwo w środowisku lotniczym i kosmicznym*. Warsaw: Semper, pp. 65–81.

Zajkowski, R. and Będkowski, B. (2019) 'Taktyczne zespoły kontroli obszaru powietrznego w połączonym wsparciu ogniowym', in Całkowski, T. (ed.) *System rażenia w operacji połączonej*. Warsaw: Wydawnictwo ASzWoj, pp. 201–212.