Lt. Col. Tamás Szvath – Lt. Gen. Zoltán Orosz:

HUNGARIAN AAR CONCEPT – WAY AHEAD

ABSTRACT: *Refuelling (AAR) capability is crucial to the Hungarian tactical fighter community, the HUNAF, the HDF and even to the entire Hungarian defence strategy. The article also describes the history of the development of this capability and also the challenges that we face to maintain AAR in the future.*

BY entering the JAS-39 Gripen tactical fighter aircraft into the Hungarian inventory we didn't just simply purchase a new aircraft type but introduced a series of new capabilities that are part of the modern western war-fighting principals that NATO is counting and building on. Such capabilities are the Link 16 Tactical Data-link system, the Litening III targeting pod, the precision guided munitions systems, the Night Vision Goggle capability, the sophisticated Electronic Warfare System with the necessary intel and analytical background and the Air-to-Air Refuelling (AAR) capability.

In modern warfare current technology provides several force multipliers to achieve more objectives/goals with fewer capabilities and smaller military force. One of those Force Multipliers is the Air-to-Air Refuelling. That means because of the possibility to refuel our aircraft in flight we can keep them in the air for longer time, send them to farther targets and/or they can carry more ordnance to achieve greater effect on the enemy's plans and capabilities. By understanding that "fuel is a weapon" we realized the importance of AAR.

All those capabilities must be integrated in the HDF with effect on our training, operations and logistics systems and generating the necessity of harmonization of existing doctrines and the development of appropriate operational guidelines, SOPs and other crucial documentation. The integration of the AAR capability in the HDF arsenal must have impact on all levels of military activities and areas of responsibilities (Strategic Concept, Operational Considerations and Planning, Tactical Implication and Technical Compatibility) and the future development plans as well. Maintaining the AAR trained aircrews' currency is a key element of the maintenance of that capability. That requires adequate training environment including the material and technical assets availability as well.

The requirement of AAR capability will have consequences on the modernization of the HUNAF (Hungarian National) Military Airlift capability by incorporating that profile in the requirements (Tanker/Receiver) of the future transport aircraft types. AAR might have implications for the future helicopter fleet development too, depending on national ambitions to establish Special Operations support and/or Combat Search and Rescue capability.

KEYWORDS: *Hungarian Air Force, HUNAF, Hungarian Defence Forces, HDF, NATO, JAS-39 Gripen, Air-to-Air Refuelling, Tanker, Receiver, fuel, AJP-3.3, ATP-3.3.4.2, USAF, SwAF, ATARES, training, operations, logistics*

In modern warfare current technologies provide several force multipliers to achieve more objectives/goals with fewer assets and resources and with smaller military force. One of those Force Multipliers is the Air-to-Air Refuelling (AAR) capability.

The NATO Allied Joint Doctrine for Air and Space Operations AJP-3.3 describes the core air power attributes and the capabilities that distinguish Air Force from the other branches of military forces.

„Air power offers the advantage of finding, fixing and engaging adversary surface forces across the full depth of the battlespace, without many of the physical, spatial, and environmental limitations imposed on surface forces.[1]"

Air Forces exploit the nature of the third dimension to project military power by three core air power attributes; speed, reach and height. These elements enable the agility through which Air Forces *"can quickly switch the point of application within and between operational theatres, sometimes during the same mission, and create tactical to strategic effects in a variety of air power operational roles. Air power's agility stems from its responsiveness, enhanced by the capabilities of genuinely multi-role platforms[2]".*

"In combination, these provide air power's characteristic flexibility as the most responsive and easily scaled tool of national force.[3]"

These guidelines also define the most important areas and missions that allied Air Forces have to focus on. One of these areas is Air Mobility including AAR capability too.

"AAR is an essential capability that increases the range, endurance, payload and flexibility of all capable receiver aircraft, and is especially important when forward basing is limited or unavailable.[4]"

In other words because of the possibility to refuel our aircraft in flight we can keep them longer time in the air, task them to farther targets, they can carry more ordnance to achieve greater effect on the enemy's plan and capabilities in a more flexible manner. The principle is crystal clear:

"The objective of AAR operations is to enhance effectiveness by extending the range, payload or endurance of receiver aircraft.[5]"

The Doctrine sets also the course of air power development efforts highlighting the importance of AAR as one of the fundamental categories of air mobility. As the document states:

"The speed and responsiveness of air mobility provides political flexibility, thereby offering options to create immediate strategic influence.[6]"

AAR capability is one of the fundamental requirements of the North Atlantic alliance in the modern principles of aviation warfighting. That Force Multiplier provides the necessary flexibility in air operations to achieve the desired goals and effects over the opposing force. That flexibility is displayed in the areas of action range, the number of necessary aircraft, endurance and weapon payload. The desired effects can be achieved and the tasked targets can be reached by less aircraft using advanced capabilities such as AAR.

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1 NATO Standard AJP-3.3 Allied Joint Doctrine For Air And Space Operations. Edition B Version 1 (8 Apr 2016) 1.2.1.1, 1-3.

2 NATO Standard AJP-3.3 Allied Joint Doctrine For Air And Space Operations. Edition B Version 1 (8 Apr 2016) 1.2.2, 1-4.

3 NATO Standard AJP-3.3 Allied Joint Doctrine For Air And Space Operations. Edition B Version 1 (8 Apr 2016) 1.2.2, 1-3.

4 NATO Standard AJP-3.3 Allied Joint Doctrine For Air And Space Operations. Edition B Version 1 (8 Apr 2016) 1.5.3.5, 1-14.

5 NATO Standard ATP-3.3.4.2 Air-To-Air Refueling. Edition C Version 1 (18 Nov 2013) 1.8, 1-3.

6 NATO Standard AJP-3.3 Allied Joint Doctrine For Air And Space Operations. Edition B Version 1 (8 Apr 2016) 1.5.3.1, 1-12.

Picture 1. U.S. Air Force photo by Senior Airman Kate Thornton/Released (100. ARW)

The importance of aerial refuelling capability is also emphasized by the fact that during Tactical Evaluation (TACEVAL) events of NATO assigned forces this area is also thoroughly evaluated. The allied requirement clearly defines that an AAR capable force should be able to perform day or night aerial refuelling in accordance with the capabilities of the employed aircraft type. It is also required that the aircrews must maintain AAR qualification by the standards set in respective national and allied regulations/publications[7]. During the actual evaluations the AAR performance is also graded and the insufficient qualification and currency of aircrews could lead to unsatisfactory grading of this area[8].

Appropriate training is an essential and inarguable necessity of preparation that leads to the desired operational capability. This statement is absolutely valid for the AAR business. The key to the preservation of the operational capability is the currency maintenance. If we don't continue keeping alive the ability to do AAR following the initial training, all the efforts and money that was put in this capability would be lost without having any operational benefit.

HISTORICAL BACKGROUND

The development of the JAS-39 Gripen fourth generation, multirole tactical fighter aircraft goes back to the early 80's having influenced by the requirements of the neutral Swedish national military defence needs to oppose the threat of a possible Soviet Union/Warsaw Pact invasion over the Scandinavian Peninsula. Later on, after the fall of the Iron Curtain, the changes in international political and military environment led to resetting the Swedish strategic objectives and also have resulted in updating the role and tasks of the Swedish Armed Forces (SwAF) as well. These changes and the success of export efforts necessitated some fundamental changes in the concept of Gripen capability structure including the AAR requirement too. The changes were introduced in the updated JAS-39C/D (industrial designation: EBS – Export Baseline Standard) version of the aircraft that was modified by the requirements of the SwAF and the possible export costumers including Hungary as well.

[7] ACO Forces Standards Volume III – Standards For Air Forces (06 May 2013) 2-16. F.

[8] ACO Forces Standards Volume VI – Shape Tactical Evaluation Manual (03 January 2013) Flying Forces OPS Resources Paragraphs 3. c.

Since the fundamental geopolitical changes in the early 90's Hungary maintains a relatively small, affordable but still capable military force. Within the Hungarian Air Force (HUNAF) such a shift resulted in drastic force reduction and changes in technical equipment as well. Once the Hungarian Peoples' Army had nine tactical fighter squadrons organized in three wings stationed on three different air bases, operating over 150 tactical fighter aircraft representing three different Soviet-built, Warsaw Pact era types; the different versions of MiG-21 Fishbed, the MiG-23MF Flogger and the SU-22M3 Fitter types. Following the long lasting gradual downsizing process of the HDF the decision was made to break up with the operational capabilities provided by the aging technology of the Soviet-made fighters – including the latest models, the MiG-29 Fulcrums. After the evaluation and selection process to find the replacement, the next generation HUNAF fighter aircraft, the Gripen was chosen as the successor to carry out the tasks previously done by the Fulcrums. Initially the Hungarian government decided to purchase Gripen A/B models with technical and operational capabilities suitable for the sole national requirements only to defend Hungarian national sovereignty. Following Hungary's NATO accession in 1999 and the upcoming elections the newly elected administration developed more robust military ambitions willing to enter the arena of allied operations. This new ambition required aircraft that could match allied compatibility requirements. The most obvious choice was the new and updated model of the Gripen aircraft – the C/D version.

HUNAF presently maintains only one tactical fighter squadron comprising 14 JAS-39C/D Gripen aircraft altogether. The Swedish made fighter aircraft along with their enhanced operational performance and the new concept of maintenance were also bringing new potential capabilities discovered step-by-step by the operators and the military and political leadership. Part of that learning curve was the realization of the importance of the AAR capability and its impact on our air operations capabilities. Currently the 12 single-seat and 2 double-seat aircraft provide capabilities that are essential for the Hungarian contribution to the NATO Air Defence System and the combined multinational operations that we participate in. These capabilities are needed not only because of our international obligations we undertake but the national duties as well.

INTEGRATION CHALLENGES

With introducing JAS-39C/D (EBS HU) Gripen fighter aircraft into the Hungarian inventory we didn't simply purchase a new aircraft type but established a series of new capabilities that are part of the modern western war-fighting principles which NATO is counting and building on. Such capabilities are the effective Air to Ground attack and up-to-date Reconnaissance capabilities of the aircraft, the Link 16 Tactical Data-link System, the Litening III Targeting Pod, the precision-guided munitions systems, the Night Vision Goggle capability, the sophisticated Electronic Warfare System with the essential supporting analytical background and Air-to-Air Refuelling capability.

The combination of all those capabilities provided by the Gripen fleet must be integrated gradually but altogether in a single unit and incorporated in the Hungarian training, operations and operational planning systems. That is a vital and still ongoing process within the HUNAF and constitutes a big challenge to the Hungarian Defence Forces (HDF). That process has clear effect on our training, operations and logistics systems and generates the necessity of harmonization of existing doctrines and the development of appropriate operational guidelines, SOPs and other crucial documentation.

The establishment of the Hungarian AAR concept has its impact on all levels of military activities and areas of responsibilities.

1. Strategic Concept – Establish concept of maintaining AAR capability (Operational Concept) in international cooperation (bilateral and multilateral) followed by possible national Tanker contribution (on condition of appropriate national Airlift capability modernization plan), harmonize relevant doctrines with the concept.

2. Operational Considerations and Planning – Include AAR training and operations into appropriate directives, orders and financial plans. Participation in international conferences and workshops will help to establish the necessary network of professional subject matter expert connections. Having no tanker aircraft in the Hungarian inventory requires advance planning and existing international arrangements.

3. Tactical Implication – Standardized methods (TTPs) how to execute AAR to provide cross servicing through NATO. Participation in respective international exercises will provide up-to-date professional knowledge. It is also important to maintain a continuously updated register system of achieved training certifications, currencies, theoretical preparations and training plans. The planning and arranging of actual tanker mission bookings are also essential tasks of this level, just like maintenance and logistic aspects of handling possible minor damage to or scratches on the airframe and canopy.

4. Technical Compatibility – Maintain appropriate logistic support plans and Technical Orders (in full cooperation with the Swedish aircraft manufacturer). Maintain national currency in relevant allied publications (ATP-3.3.4.2, national Standard Related Documents (SRD) and Air-to-Air Refuelling Clearance and Compatibility Database (AAR Matrix)[9]). The success of AAR operations depend on three major factors; the three areas of compatibility, the equipment, the performance and the procedural compatibility. It means that the receiver and the tanker aircraft have to meet the same standards and technical specifications of fuel systems, must have identical envelope of flight performance, and follow common standard procedures.

PREPARATORY ACTIONS

Because of the successfully running Gripen program we could initiate cooperation with the NATO tanker community and begin the sequence of technical compatibility arrangements. We followed the Swedish footsteps. The SwAF Gripens have already completed several hundred tests, training and operational aerial refuelling flights with a number of different tanker types (also including the Czech Air Force and the Royal Thai Air Force aircrews the list is very impressive; modified SwAF C-130E, modified South African B707, French Air Force KC-135F, USAF KC135 and KC-10, German Air Force A310 MRTT and Italian Air Force KC-767, Republic of Singapore Air Force KC-135). Benefiting from the fact that Hungarian Gripens have identical fuel system to the Swedish ones we have the possibility to get our aircraft certified against all tanker types the Swedish party has proven technical compatibility with. This way we don't have to do the expensive testing and technical verification of the ability but simply provide the necessary paperwork that proves our aircraft meet the standards and required specifications. Nations obviously tend to protect their

[9] "Air-to-Air Refuelling". Joint Air Power Competence Centre. https://www.japcc.org/aar/, Accessed on 12 May 2017.

high value airborne assets like tanker aircrafts. One form of that protection is requesting evidences of technical compatibility and setting minimum training requirements that have to be met before receiving permission to contact tankers. Bilateral cooperation agreements are signed based on documents proving technical compatibility of receiving aircraft. The Joint Air Power Competence Centre (JAPCC) documents these in ATP-3.3.4.2 publication.

In November 2012 Hungary signed the Letter of Interest (LoI) of EDA Multi Role Tanker Transport (MRTT) initiative – however did not join the efforts to establish the Pillar capability. The purpose of the program is to facilitate multinational initiatives in relation to either increasing the AAR capability in Europe or optimizing the use of existing one. The goal is to develop an AAR capability in Europe and offer tailored access to AAR to non-tanker capable member states[10]. The reason of our delay in developing this capability and later the limited participation was the lack of available pre-planned Hungarian financial resources dedicated to AAR. Since the present year on HUNAF has assigned additional funds committed to the aerial refuelling training.

To support the Hungarian Gripen program a Foreign Military Sale (FMS) project was established with the US counterpart to provide funding for USAF tanker flight hours. That resource was used for the initial training and also for the follow-on currency extension flights. HUNAF has greatly benefitted from the USAF aerial refuelling support provided by the 100th Air Refuelling Wing (ARW) at RAF Mildenhall, England[11]. For initial AAR training a KC-135 tanker aircraft has been deployed for a two-week mission to the Hungarian Gripen home base to provide training support. Most of our currency maintenance missions were also backed by the 100th ARW.

We have initiated bilateral negotiations with partner air forces having compatible tanker aircraft with the purpose to sign MoU governing AAR cooperation. This is a still ongoing process. Based on the technical compatibility of tankers, or operating an identical aircraft type, the geographical location and historic military cooperation we consider the following nations as possible cooperating partners: Czech Republic, Croatia, France, Italy, Germany, Slovakia, Sweden and United States.

Hungary is member of the ATARES[12] program as well. In May 2016 Hungary hosted the semi-annual Movement Coordination Centre Europe (MCCE) AAR/ASM Operations Meeting in Budapest, offering excellent occasion to establish further professional relations. This meeting also highlighted the importance of ATARES – instead of money transfer the AAR and AT services are compensated among the nation in barter – flexibility, minimizing bureaucracy. MCCE regularly publishes the tanker flights available for AAR training. That is certainly a cost-effective and flexible way of organizing refuelling training. The other benefit is that through ATARES we have to reimburse services proportionally – only the share of flight time we used up from a particular tanker mission. In the current conditions this program can be one of the long-term solutions for HUNAF AAR currency maintenance.

[10] "Air-to-Air Refuelling". European Defence Agency. https://www.eda.europa.eu/what-we-do/activities/activities-search/air-to-air-refuelling, Accessed on 20 June 2017.

[11] Thornton, K. "Hungarian air force performs first historic air refueling with help from NATO ally, partner". U.S. Air Forces In Europe & Air Forces Africa. 13 July 2015. http://www.usafe.af.mil/News/Article-Display/Article/748212/hungarian-air-force-performs-first-historic-air-refueling-with-help-from-nato-a/, Accessed on 20 June 2017.

[12] Air Transport & Air-to-air Refueling and other Exchange of Services.

OPERATIONAL AND TRAINING CONCERNS

AAR provides obvious and undeniable advantages to HDF in the area of Air Operations. In the past, with the MiG-29 Fulcrum fighter aircraft – the predecessor of the Gripen type – HUNAF could not participate in full operational extent in allied exercises and operations. One of the main reasons was the "short legs" of the Fulcrum, in other words the insufficient range and endurance to provide air power projection. We were forced to play either opposing Red Force role or being employed in short route and endurance scenarios. That shortcoming made us unwelcomed in real allied air operations. We had to face the fact that fuel is a weapon and we had serious disadvantage in that field.

"Additional fuel provides attack aircraft the ability to fight longer and out-last the adversary by extending range and endurance, and thus putting adversary aircraft at a distinct disadvantage.[13]"

With the successor fighter type we are equal partner to the allied air forces and capable to meet the operational needs and requirements of the alliance. Although without external fuel tanks Gripen has only about 50% more range compared to the predecessor fighter aircraft, and by using drop-tanks that range could be nearly tripled, the possibility of in-flight refuelling virtually puts us in the prime league. Generally speaking, a typical fighter aircraft using external fuel tanks can stay airborne about 1-2 hours. With in-flight refuelling that endurance can be extended more than 5 times.

The initial AAR training of the Hungarian pilots was covered by the Gripen Lease Agreement. To support our efforts SwAF provided experienced instructor pilots and a double-seat aircraft in order to complete the task as scheduled. That provided us the capacity to hook-up on tanker aircraft daytime in good weather conditions. Based on the conversations and continuous communication with the Swedish and Czech instructor pilots, the follow-on training has critical importance. Practical experience shows that only a relatively intensive practicing of AAR skills can get us to the next level, being capable of in-flight refuelling under more complex weather conditions and fulfil the mission in more stressful environment.

Night contacts are currently not permitted due to the existing technical limitations of the aircraft. However, the technical and software modifications are nearly completed, and subsequently the night aerial refuelling capability will be available to all Gripen user nations that have ordered such updates.

The original configuration of the JAS-39A/B Gripen aircraft had no AAR capability at all. The original Swedish homeland defence concept using the network of dispersed forward operating bases and expecting relatively short missions did not need it. That requirement was added and introduced later in C/D variant. According to the original plan there was no AAR probe designed in the aircraft and it had to be added to the existing structure of the airframe therefore the manufacturer had only very limited options where to put and how to position it. Although Saab engineers did an excellent work on adding the retractable telescopic refuelling probe the best available location was far from the optimum place. Finally they have stuck it in the intake nacelle assembly, close to the root of the port canard. (Picture 2) This way the tip of the probe got way behind the pilot's position, this way fading out of the peripheral vision and makes the actual contact "invisible" right in the most critical phase of

[13] NATO Standard AJP-3.3 Allied Joint Doctrine for Air and Space Operations. Edition B Version 1 (8 APR 2016) 1.5.3.5.b, 1-14.

Picture 2. U.S. Air Force photo by Senior Airman Kate Thornton/Released (100. ARW)

the manoeuvre. Having only limited direct visual references the pilot can rely on the closure rate and attitude prediction making judgments based on his experience.

Missed connections coupled with attitude or closure misjudgement and aggressive manoeuvring could easily lead to aircraft damage or ripping off the basket. Most common ones are the bruises and scratches on canopy, canard and fuselage. In case of serious mistakes the tanker's drogue could cause serious damage on the receiver aircraft – subsurface damage in the canard structure, deep scrapes on canopy or even breaking off sensors and antennas or damaging the refuelling probe itself. (Picture 3) Such problems could lead to the need of changing these expensive parts causing the affected aircraft falling out of training or operations for a significant period.

The imperfect location of the refuelling probe makes the in-flight refuelling operation a difficult process that requires extensive flight experience from the pilots. That fact emphasizes that the systematic preparation including frequent periodical training flights are even more important for them. The Swedish and the Czech experience proves the logical presumption that more frequent training flights will result in less canopy and airframe damage and will reduce the Flight Safety risk level. The minimum currency requirement by the relevant NATO document (ATP-3.3.4.2) is set as a minimum of 3 contacts every 6 months. Initially, HUNAF planned to maintain aircrew currencies in accordance with the above

Picture 3. Photo courtesy of SwAF

mentioned STANAG. However, after evaluating national and other Gripen user nations' in-flight refuelling missions the real life experience proved that due to the probe location it is recommended to do training flights more often, at least one training sortie – with multiple contacts – every 3-4 months.

Another flight safety problem is the extended flight capability itself, provided by AAR. In the past, HUNAF had no experience in long endurance flights with fighter jet aircraft. The previous types had some limited possibility to extend range and/or endurance using external tanks but that did not provide a "quantum leap" in that area. We consider this issue a significant matter that requires special attention. During the discussions with foreign subject matter experts we mapped up the critical aspects that has to be considered for the future planning and research.

In preparation for the AAR training and in support of fighter deployments we introduced training missions connected with hot refuelling – refuelling on ground with running engine and pilot in cockpit. Those flights provided similar workload and time period spent in cockpit on one sortie as the AAR sorties and this way we can gain initial experience for a deeper analysis of the problem of long-term workload in a very compact cockpit.

In the future we might also face the necessity of extreme long endurance flights. Those conditions require special arrangements and care for the pilots involved regarding the area of metabolism. Providing fluid and nutrition/food supplies (energy replenishment) and handling organic waste substances are also critical issues. Maintaining the awareness and alertness of the aircrew during the whole flight is another area of concern. Certain nations have detailed guidelines to regulate this area. We still have an ongoing debate regarding the acceptable methods and risks in different possible solutions.

FUTURE PLANS AND WAY AHEAD

Current trends in the geopolitical situation suggest that national and coalition forces will have a continuous requirement for in-flight refuelling capability. The renewing tensions with the Russian Federation and its possible allies intensify the need for force multipliers within NATO countries. This re-emerging need affects the national military potentials too. If we want to meet the challenges of our security environment we have to keep up with the needs to defend our national sovereignty and also support the military operations of the alliance we are part of. That goal designates a clear path to us in the question whether to maintain the hardly achieved Hungarian AAR capability. We have to maintain aircrew currencies and keep updating of relevant documents. If we lose the capability it would take quite higher magnitude of money and much lengthy period of time to re-establish it again. That would also make the efforts we took go in vain.

The integration of the AAR capability in the HDF arsenal must have its impact on the future development plans as well. Maintaining the AAR trained aircrews' currency is a key element of maintaining the capability. That requires adequate training environment including the availability of material, technical and financial resources as well. If we don't have our own tanker aircraft available, we will lose operational and training independence on missions. We either have bilateral/multilateral agreements established on financial basis or rely on other nations/organizations goodwill influenced by their own national interests and needs.

Picture 4. U.S. Air Force photo by Senior Airman Kate Thornton/Released (100. ARW)

Like in the case of Gripen the JAS[14] designation refers to the multirole capability of the aircraft, the MRTT concept can be the solution for our tanker needs. There is an urgent and looming need to replace our aging "Millennium Falcon" – the An-26 fleet. The long-awaited modernization of the Hungarian Military Airlift capability is a good opportunity to incorporate AAR capability in the requirements (Tanker/Receiver) of the future transport aircraft types. (Note: AAR capability might have implications on the future helicopter fleet development too, depending on national ambitions to establish Special Operations support and/or a Combat Search and Rescue capability.)

Until we can establish own tanker capacity operational and training missions we have to create financially sustainable international cooperation. We need to benefit from sharing experience and sharing resources – that is the point of Smart Defence and Pooling and Sharing concept. For that kind of collaboration the ATARES program is an excellent example. We have to create new bilateral agreements and maintain the cooperation with USAF by extending the existing FMS project.

Another possible way of keeping the currency alive is the regular participation in international exercises and joining AAR scenarios, fly realistic missions. That practice is also needed to get our aircrews used to performing in-flight refuelling in assigned, strictly controlled time-window, under operational pressure. One of the lessons learned from Operation Unified Protector (OUP) was the importance of aerial refuelling capability. Since OUP was an AAR-heavy operation, tanker planning and availability was a crucial factor that required experienced planners and aircrews. All these experts had to show great flexibility to keep the campaign running amidst aircraft fall-outs and breakdowns. Therefore it would be highly desirable to have regular, NATO organized, and AAR-dedicated exercises where planners, tanker and receiver aircrews could gain more experience and maintain their knowledge and skills.

[14] JAS designation refers to the multirole performance of Gripen aircraft; „Jakt" for air-to-air, „Attack" for air-to-surface, and „Spaning" for reconnaissance capabilities.

Finally, the conclusion and the bottom line is that by maintaining HUNAF AAR capability our dedicated goal is to be a more effective contributor in the collective defence system through providing up-to-date and high-quality capabilities to support coalition operations and national duties as well.

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