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# NATO's Multinational MRTT Unit

## *An Update and Case Study for Future Defence Cooperation*

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### **Introduction**

In the 32<sup>nd</sup> edition of the Journal of the JAPCC, the 'The Multinational Multi-Role Tanker Transport Fleet Programme' article detailed the organization and structure of the Multinational MRTT Unit (MMU), which employs the KC-30M Multi-Role Tanker Transport (MRTT) aircraft.<sup>1</sup> Since publishing, a number of developments within NATO's Air-to-Air Refuelling (AAR) mission set warrants revisiting this topic.

This article will provide a brief review of the formation of the MMU, update on the progress and the successes over the past year and a half and, most importantly, provide recommendations for NATO and the Alliance members to improve the interoperability of NATO AAR capabilities and a model for future defence cooperation programmes. For this article, MMF (Multinational MRTT Fleet) refers to the aircraft acquisition programme, and MMU refers to the unit responsible for training and equipping the personnel and operating the aircraft.

## The MMF Programme

The MMF programme began in 2016 when the Netherlands and Luxembourg signed the Memorandum of Understanding (MoU). Shortly after, Belgium, Germany, Norway, and then the Czech Republic joined by signing the MoU.<sup>2</sup> As additional signatories joined the programme, more aircraft were ordered, resulting in a planned fleet of nine MRTTs operating from two locations. The Main Operating Base in Eindhoven, the Netherlands, will operate five aircraft, and eventually, four aircraft will operate from a designated Forward Operating Base located in Cologne, Germany.

As of this publishing, the MMF consists of seven A330-200 MRTT aircraft with the latest delivered in August 2022 and the last two expected before the end of 2024.<sup>3</sup> The Organisation for Joint Armament Cooperation (OCCAR) in cooperation with NATO Support and Procurement Agency (NSPA) led the procurement of the MRTT aircraft.<sup>4</sup> With the procurement phase nearly complete, OCCAR, whose role was to execute the acquisition of the aircraft, will pass sustainment entirely to NSPA, who is responsible for lifecycle management and sustainment, completing the OCCAR-NSPA cooperation agreement.<sup>5</sup>

The MMU, which encompasses the personnel and support equipment to operate the fleet of aircraft, continues training and certification of pilots, air refuelling operators (AROs), cabin attendants, and maintenance personnel to execute the unit's primary missions, which include air refuelling, airlift, and aeromedical evacuation. The MMU currently has at least 40 qualified pilots, more than 20 fully trained AROs, and 30 qualified cabin attendants. This amount of trained personnel, representing more than half of the required personnel, assures the necessary experience and capability to begin initial operations.

## MMU Initial Operational Capability

Initially delayed due to the COVID-19 pandemic, the MMU expects to hold the Initial Operational Capability (IOC) ceremony in the spring of 2023. Typically, the IOC declaration occurs before accepting

operational missions. However, critical NATO operational requirements brought the MMU into the mission before such formality.

First used for its passenger transport capability, the MMU supported the evacuation of military personnel and civilians from Afghanistan in August 2021.<sup>6</sup> Following Russia's invasion of Ukraine in February 2022, NATO requested the MMU AAR capability to





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Airbus School, Meda/Orlando, Oct 2018

support NATO operations along the eastern flank. These missions included NATO enhanced Air Policing, enhanced Vigilance Activities, and Air Shielding to enhance security and guarantee territorial integrity.<sup>7</sup> As of October 2022, the unit has flown more than 175 AAR missions and offloaded more than 6.5 million litres of fuel to more than 800 aircraft. Simultaneously, the MMU began participation in large-scale aircraft deployments and exercises.

In March 2022, the MMU supported exercise Cold Response 22 which was designed to train, rehearse, and validate advanced NATO and bi-lateral plans for reinforcing Norway and the High-North in an Article 5 situation with a realistic threat environment.<sup>8</sup> Then, the MMU again proved its impressive capabilities in August 2022 during exercise Pitch Black, rapidly deploying three MRTT aircraft along with six German Luftwaffe EF-2000 aircraft from Europe to Australia in

under 24 hours for sustained operations.<sup>9</sup> During the exercise, the MMU participated in the tactical execution of large force employment offensive counter-air and counter-land operations for almost three weeks in a multinational environment to enhance interoperability among the 17 participating nations.<sup>10</sup>

These recent major accomplishments, many of which were planned and executed concurrently, prove the MMU's readiness to declare IOC and enable the unit to further develop the necessary capabilities to meet the full range of national and NATO requirements.

### Current Status and Limitations

The JAPCC manages, tracks, and facilitates the interoperability of AAR assets and receivers across Alliance and partner nations. In this role, the JAPCC develops procedures, doctrine, and technical guidelines for AAR operations and systems development. For the MMU and several nations working to recapitalize their AAR fleets, the mantra is 'a tanker without a clearance is not a tanker'. That is, each type of AAR aircraft must obtain technical and operational clearance to refuel each type of receiver aircraft prior to receiving an operational mission tasking.

NATO standardization document ATP 3.3.4.2.1, 'A Guide to Obtaining Air-to-Air Refuelling Clearances and Compatibility Assessments' provides the necessary guidance for nations looking to establish and maintain the AAR interoperability of their aircraft, whether receiver or tanker. The process, known as a Technical Compatibility Assessment (TCA), 'confirms that the aircraft are (or are not) able to mechanically couple, off-load or on-load fuel, and then decouple without damaging either aircraft or creating an unsafe situation and determines the airworthiness and technical risk of a tanker and receiver pairing'. Nations assess technical compatibility, from category 1 to 3, depending on the analysed level of risk.<sup>11</sup>

After completing a TCA, nations assign a clearance category specifying any limitations discovered during flight testing or if the flight testing has yet to be

accomplished. A category 3 clearance means that 'all requisite technical aspects regarding airworthiness/safety of flight for the targeted tanker/receiver pairing have been satisfied through acceptable means of compliance for the targeted scope specified by the nation requesting and/or conducting the analysis'.<sup>12</sup> These clearance categories are bilateral, requiring each nation operating a specific aircraft type within a tanker-receiver pairing to assign a clearance category.

The AAR Clearance and Compatibility Database (AAR Matrix), available on the JAPCC website (<https://coi.japcc.org/aar/>), reveals that many of the newest tankers operated by NATO and partner nations, including the KC-30M, KC-46A, A-330 MRTT Phénix, and KC-30A, are still in the process of completing the TCAs to establish the AAR clearances.<sup>13</sup>

The MMU KC-30M currently has Category 3 technical compatibility clearance with F-16A/C from 10 different nations, F-35A from the Netherlands, Norway, Italy, and the United States (US), and drogue-only receivers from the German Luftwaffe, including the EF-2000 and TORNADO IDS/ECR. The KC-30M has clearance to refuel six different aircraft types spread across 12 nations. To put this into perspective, the previous tanker flown by the Netherlands was the KDC-10, now retired, which was certified for more than 40 different receiver types from 16 NATO and 10 partner nations. So far, the KC-30M has only 30% of KDC-10's AAR clearances.

### Tanker Interoperability Is a NATO Challenge

The MMU is not navigating the challenges of implementing a new tanker alone. Many nations are incorporating new tanker aircraft that currently lack clearances with the aircraft they need to refuel in the event NATO or a coalition must execute combined operations. The NATO standard used to evaluate these clearances provides risk mitigations, assured safety between nations, and a general procedure for an expedited clearance process called 'read-across'.

'Read-across' is the method for achieving certification for a specific tanker-receiver pairing based on an existing certification of like-aircraft pairing from another nation. This method enables nations to share their engineering and testing information for an approved tanker-receiver pairing, subsequently allowing nations to evaluate the data, determine if it meets their certification requirements, and then either grant a clearance or develop a reduced test plan to complete the certification. 'Read-across' can dramatically reduce the total expense of AAR certification, but it relies on the bilateral sharing of testing and engineering data, often impeded by classification restrictions or other issues.

However, the read-across process does not apply to an aircraft pairing where clearance does not currently exist. For all new aircraft types (MRTT, KC-46A, KC-767A, etc.), every receiver-tanker pairing must be certified before tasking, which necessitates a significant expenditure of time, money, and other resources. Experience shows that aircraft that should be compatible (i.e. on paper) sometimes exhibit suboptimal characteristics

during certain flying and refuelling conditions. In several cases, flight restrictions or aircraft modifications are required to enable safe in-flight refuelling.

Despite these challenges, the Alliance will achieve the interoperability needed for operations, but only with intentional peacetime efforts and the deliberate decision by Alliance's members to act, dedicating the time, money, personnel, and ideally data sharing. In the short term, and particularly if tasked to execute an operation similar in scope to Operation Unified Protector, NATO will face a significant challenge as several nations have retired or are retiring their legacy platforms before the replacement aircraft have the necessary certifications to fill the requirement.

### Way Ahead and Recommendations

The MMF is an outstanding example of cooperation, burden sharing, and innovative NATO Smart Defence actions.<sup>14</sup> Former NATO Secretary General, Anders Fogh Rasmussen, launched NATO's Smart Defence





initiative in 2011 to help the Alliance develop, acquire, and maintain capabilities in a cost-effective and efficient manner.<sup>15</sup> He defined Smart Defence as ‘how NATO can help nations to build greater security with fewer resources but more coordination and coherence, so that together we can avoid the financial crisis from becoming a security crisis’, reiterating that ‘we need a new approach: Smart Defence – ensuring greater security, for less money, by working together with more flexibility’.<sup>16</sup> Along with the NATO Alliance Ground Surveillance (AGS) operating RQ-4Ds from Sigonella, Italy, the MMF is one of several programmes established or matured under the NATO Smart Defence initiative.<sup>17</sup> These programmes bring together nations looking to meet national and NATO Defence Planning Process (NDPP) capability targets without bearing the full cost of a national defence procurement programme.

The MMF programme expects to complete its planned procurement in 2024 and to declare Full Operational Capability (FOC) during the summer of the same year. According to Colonel Jurgen van der Biezen, the Commander of the MMU, the programme’s member nations have the option to order an additional aircraft for every 1,100 flying hours added to the programme. As of December 2022, the 10th MRTT aircraft was ordered as Belgium recently increased their national contribution, bringing the programme to more than 10,000 flight hours per year. Additionally, any nation can apply to join the MMU although no nations are currently pursuing this option.<sup>18</sup> The following recommendations can help the MMU achieve its full potential while enabling NATO members to reach national and NDPP targets.

**Recommendation 1.** Additional NATO nations should join the MMF programme. For many allies, building an internal air refuelling capability is cost prohibitive, but almost all have receiver aircraft. The MMF offers AAR capability at much lower entry cost. Further, with sufficient additional flight hour contributions the nations can agree to negotiate and order additional aircraft under a supplemental purchase agreement, increasing the total fleet size. In addition to improving training and operational capability, these flight hours would enable more nations to complete the required tanker and receiver certifications.

**Recommendation 2.** Ally and partner nations with receiver aircraft should purchase or otherwise negotiate flight hours directly from MMF member states first to accomplish necessary testing to complete receiver clearances and, second, to accomplish other training or operational needs.<sup>19</sup> Under the MMF programme and potentially through ‘Air Transport & Air-to-Air Refuelling and other Exchanges of Services’ (ATARES), many NATO nations can use this cashless system to gain access to the MMF capability to complete any required flight testing and document improved tanker interoperability.

**Recommendation 3.** The US should contribute to the MMF at a level sufficient to enable the acquisition of an additional aircraft. The US has, historically, provided the majority of NATO’s AAR capability and operates a diverse and extensive array of receiver aircraft, many of which are not operated by other nations. Joining the MMF would enable rapid certification of all US receiver aircraft, currently in backlog. Furthermore, US certification requirements are

rigorous and could be a force multiplier leading to multiple read-across certifications. By joining the programme, the US would increase support to NATO and gain access to the KC-30M airframes and associated capability. This enables testing and certification flights and access to the KC-30M for exercises, operations, planning, and tactics development. This buy-in also increases the US tanker capacity for the Europe and Africa regions without deploying additional US-owned aircraft, already in critically high demand.

## Conclusion

The MMF programme is, by all accounts, an enormous success for NATO and the MMF members. Over the coming months and years, the programme will continue to improve the number and diversity of AAR technical and operational compatibility certifications. In a crisis requiring a NATO military response, the MMF will be ready to meet the mission needs of operational commanders. Furthermore, the MMF programme demonstrates the Alliance's stalwart capability and willingness to support and, when necessary, defend itself. With NSPA's oversight and partnership with the European Defence Agency, the MMF proves the viability of cooperative defence programmes, especially those needed to fill critical roles. NATO must build upon the success of this programme and explore other areas where cooperative defence acquisitions can fill national and Alliance capability requirements. ●

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