

Multi Role Tanker Transport Capability (MRTT-C)

LOI ¹ signed	MOU ² signed	1 st delivery	Final delivery
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Participants

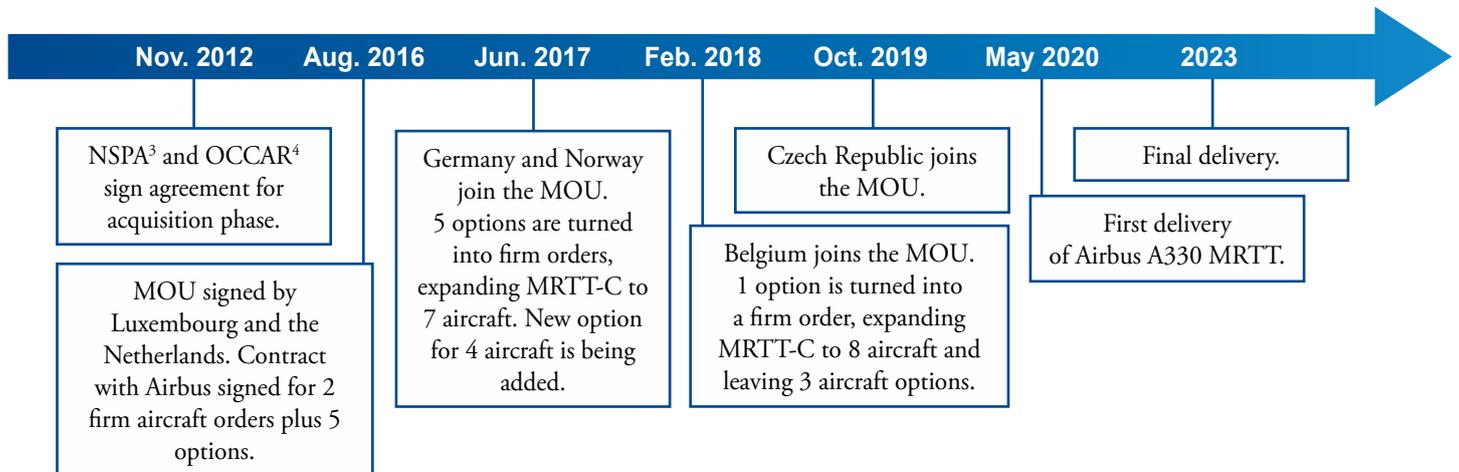


What is MRTT?

The Multi Role Tanker Transport, an Airbus A330 aircraft, is used by NATO nations to provide air-to-air refuelling (AAR). The MRTT Capability (MRTT-C) is a High Visibility Project establishing a multinationally owned and operated fleet of MRTT aircraft.

Multinational Effort

Following operations in Libya and extensive analyses by the European Defence Agency (EDA), it was agreed at the NATO Summit in 2012 that the EDA would lead an initiative to address the shortfall in AAR capacity in Europe.



The initiative's aim was to optimise existing and planned assets and develop a European Multinational MRTT Fleet (MMF). In 2016, Luxembourg and the Netherlands formally launched the project. Since then Germany and Norway joined in 2017, followed by Belgium in 2018 and the Czech Republic in 2019. The six European Allies are now awaiting delivery of the aircraft. The MRTT-C fleet currently consists of eight Airbus A330 MRTT aircraft, scheduled for delivery between 2020 and 2023. There is an option for three additional aircraft.

This multinational fleet arrangement is a cost-effective and flexible solution, reducing the European shortage in AAR capabilities and the reliance on U.S. capabilities. The project demonstrates the deepening cooperation between NATO and the European Union in delivering critical capabilities.



Airbus A330 Multi Role Tanker Transport aircraft.

1 Letter of Intent – initial non-binding document outlining participants' will to explore the area in question further.
 2 Memorandum of Understanding – legally binding document specifying details of cooperation.
 3 NATO Support and Procurement Agency
 4 Organisation Conjointe de Coopération en matière d'Armement.

Why is it important?

Air-to-air tankers are vital in supporting NATO operations that require long range air missions. For these missions the goal is to limit the time aircraft spend on the ground. MRTT allows aircraft to be refuelled mid-flight, extending mission time significantly. It can be equipped with one or both refuelling standards, a probe-and-drogue system and a boom. The set-up of these refuelling methods can be adapted to meet nations' requirements. NATO has a standardised valve system to ensure aircraft across the Alliance can be refuelled.

How does it work?

The probe-and-drogue system consists of fuel pods, located under the wings of the tanker, a retractable hose housed in the pods, as well as a centreline hose used for refuelling larger aircraft. The receiver must be equipped with a probe, usually located at the nose of the plane. When performing an AAR manoeuvre, the tanker extends the drogue-stabilized hose towards the receiver. Once the receiver inserts the probe into the tanker's drogue, the valves open and fuel starts to flow.

Tankers can be equipped with multipoint systems which allow for two aircraft to be refuelled simultaneously. Both helicopters and small aircraft can be easily equipped with a refuelling probe. The probe-and-drogue system also allows refuelling by non-dedicated tanker aircraft. A popular example exists for naval carrier operations when one tactical fighter can refuel another tactical fighter through the so called buddy-buddy refuelling. This refuelling process, however, requires more adjustments by the pilot and is susceptible to bad weather. Automated AAR (A3R) systems are being developed to address these issues as well as to allow Unmanned Aerial Systems to conduct AAR.

In the boom system the tanker is equipped with a flying boom, a rigid telescopic tube which is attached to the rear of the aircraft. The receiver is equipped with a refuelling receptacle usually located behind the cockpit. This is the simplest and safest position for the boom to be attached and the fuel to be routed into the fuel tanks. Once the two parts properly connect, the fuel starts flowing through a rigid pipe inside the boom.

The greatest advantage of this system is its high fuel flow rate. It is also less susceptible to adverse weather. However, the refuelling process requires a boom operator on the side of the tanker and only one receiver can be fuelled at a time.



Execution of AAR through the probe-and-drogue system.



Airbus A330 Multi Role Tanker Transport aircraft executing AAR through the boom system.

Did you know?

1. There used to be a system of wing-to-wing refuelling. This is, however, no longer used.
2. Air-to-air refuelling does not only mean longer mission time, but it also allows receivers to take-off with less fuel and greater payload such as weapons, cargo, or personnel. It is thus a key enabler for distance and endurance, and a force multiplier that allows combat air platforms to cover multiple missions.
3. Air-to-air refuelling is not only used during fixed wing military missions, but also for helicopter operations.



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