

KC-30A update

By Squadron Leader Stephen Monypenny
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Reach is one of air power's most important characteristics, but for the first four decades of military aviation, reach was limited by the range and endurance of most aircraft. From the early 1920s, the United States Army Air Service conducted experimental air-to-air refuelling and, in 1923, managed to keep a DH-4B airborne for more than 37 hours, with nine air-to-air refuels. Similar trials were being conducted in Britain and France. By the end of the Second World War, the Royal Air Force had converted a Halifax bomber into a tanker aircraft capable of refuelling Lancaster aircraft which could have been used to bomb the Japanese mainland. The British system was later developed into the system now known as the probe-and-drogue system. In the 1950s, Boeing developed the boom-and-receptacle refuelling method for the United States Air Force to allow greater fuel flow rates than was possible with the probe-and-drogue system. The first boom-fitted KC-97 tankers flew in 1950. The newest generation of tankers, the KC-30A and KC-46, continue the improvement of air-to-air refuelling while including advances in communications, tactical awareness and self-protection.

An effective tanker force allows the projection of a nation's air power far beyond what it would be without air-to-air refuelling. At the time of writing this article, five KC-30A aircraft were operated by No 33 Squadron at RAAF Amberley in Queensland. An additional two

aircraft were to be delivered by 2019 and the *2016 Defence White Paper* provided options for further aircraft, at the Australian Government's discretion.

With a maximum take-off weight of 233 tonnes and a wingspan of 60 metres, the KC-30A is the largest aircraft in the RAAF. It requires significant coordination, personnel, ground support, equipment, maintenance and logistics support to enable effective operations. The KC-30A is a multi-role tanker transport aircraft capable of carrying a combination of up to 270 passengers, eight military pallets and 110 tonnes of fuel. The KC-30A flies globally in all roles: tanker, cargo and passenger transport. With an empty-weight range of 14,000 km, it can be repositioned to support operations around the world within 24 hours.



KC-30A re-fuelling console. Credit: Department of Defence

The typical KC-30A operating crew includes two pilots, an air-refuelling operator and crew attendants, as required, to support passenger movements. Maintenance and support personnel are required for away base and extended operations. No 33 Squadron uses the KC-30A to support domestic and international tasking, exercises and training missions. The aircraft has the capability to be refuelled by another tanker, enabling it to conduct ultra-long-range air-to-air refuelling or transport missions. The majority of air-to-air refuelling missions are in support of the F/A-18 Classic and Super Hornets in their major training areas, and regularly facilitates long-range accompanied strike and air patrols across Australia.

The KC-30A is equipped with a number of radios, Link 16 datalink and mission-planning systems, which combine to provide a high level of situational awareness to the pilots and air-refuelling operator. This allows the crew to communicate securely with receiver aircraft and coordinating agencies. These enhanced communication capabilities allow the real-time repositioning of the aircraft in anticipation of coalition requirements, minimising the duration of the refuelling event and the time the receiver aircraft is away from its primary mission of providing tactical or close air support.

Since September 2014, No 33 Squadron has deployed a single KC-30A aircraft in support of Operation *Okra* in the Middle East as part of coalition operations against the Daesh in Iraq and Syria. With approximately 30 personnel, the detachment has conducted more than 800 sorties, achieving 6400 flying hours and offloading 64 million pounds of fuel to RAAF and coalition aircraft. In Operation *Okra*, the KC-30A is delivering approximately twice the rate of effort and capability than a previous-generation tanker, such as a KC-135. This operation has demonstrated how the next-

generation tanker can integrate into the air and ground network, ensuring maximum capability and flexibility while retaining its core function of providing fuel to other aircraft.

In addition to Operation *Okra*, the KC-30A is involved in a number of other significant activities:

- Receiver clearance programs, requiring significant engineering and flight-test programs, are being conducted to enable safe and efficient refuelling of RAAF and allied aircraft by the KC-30A. The RAAF has recently completed F-35, F-16 and C-17 programs with plans to conduct additional programs with coalition partners over the next few years.
- RAAF KC-30A aircraft have participated in domestic and international exercises including Exercises *Pitch Black*, *Talisman Saber*, *Red Flag* and *Cope North*.
- The aircraft have also carried out national tasking supporting government, Defence and coalition-partner activities, including fighter aircraft deployments to the Middle East, Southeast Asia and Pacific regions.
- The squadron also conducts ongoing aircrew and maintenance training.

In addition to the above activities, No 33 Squadron is expanding its KC-30A fleet and conducting a number of key program upgrades as part of Plan Jericho. Two additional aircraft will be added during 2017–19, bringing the total fleet to seven. Plan Jericho will enable upgrades to communications and datalink node capability, mission system, advanced refuelling boom system, and many other systems. The additional aircraft, upgrades, training and development of RAAF aircrew and support

personnel will all improve the functionality and employability of the KC-30A, further enhancing its reputation as the tanker of choice.



In Operation Okra, RAAF KC-30As have refuelled many coalition aircraft including this USMC EA-6B Prowler.

Credit: Department of Defence

The KC-30A has enabled the RAAF to make a significant leap forward from legacy tankers used 'behind the fight and out of sight'. The KC-30A will continue to mature and expand, providing a fully networked and flexible

multirole aircraft that will be critical to the defence of Australia, protection of allied interests and support to domestic and regional incidents.

- *An integrated and networked tanker such as the KC-30A provides a significant increase in capability and enables extended air power projection.*
- *During Operation Okra, the KC-30A provided significant fuel offload capability and demonstrated the advantages of next-generation tankers.*
- *Future fleet expansion, receiver clearance and modification programs will further enhance the RAAF's KC-30A capability.*

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Information in this article was correct at the time of writing.