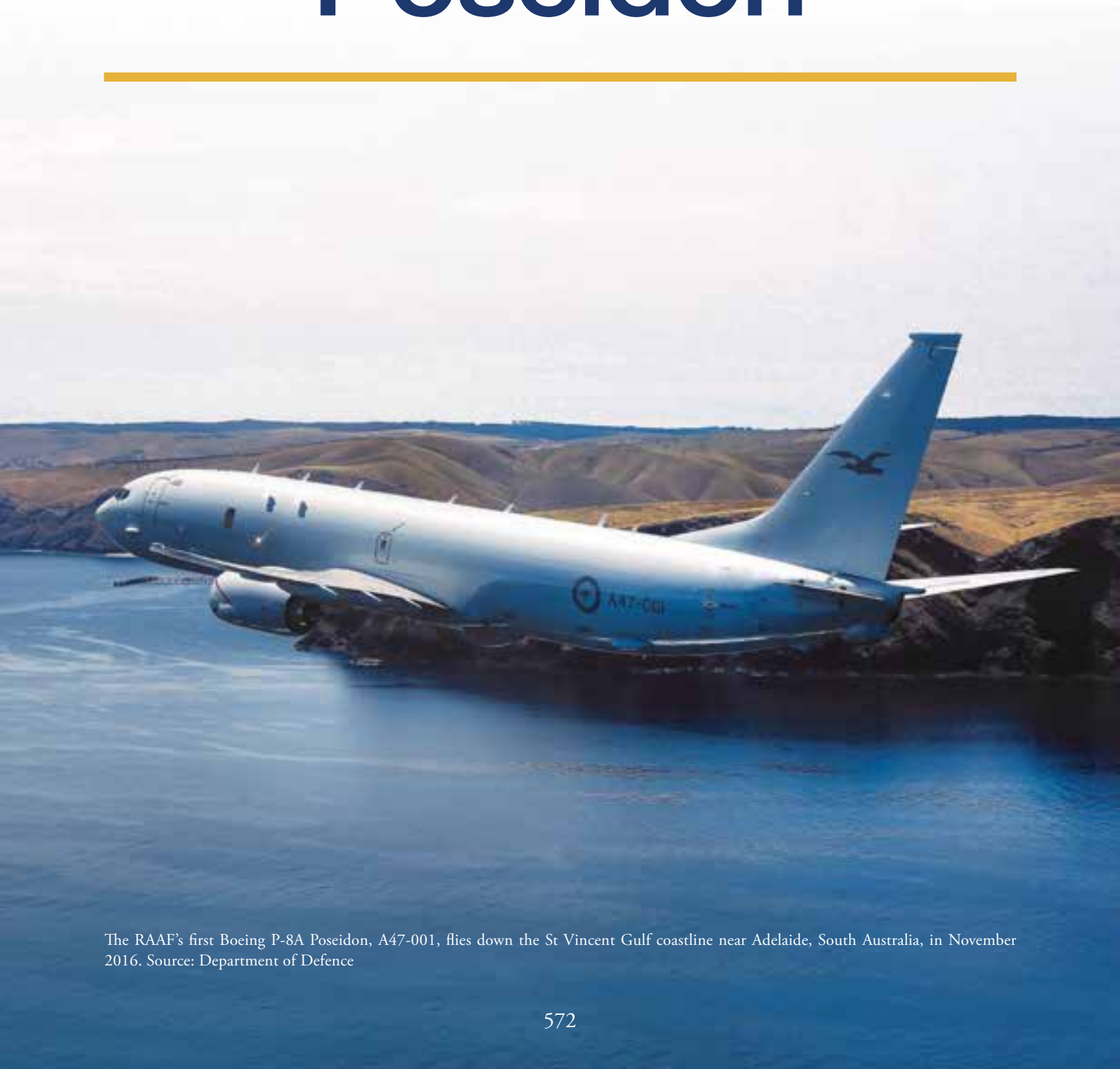
A47 – Boeing Poseidon



The RAAF's first Boeing P-8A Poseidon, A47-001, flies down the St Vincent Gulf coastline near Adelaide, South Australia, in November 2016. Source: Department of Defence

Boeing P-8A Poseidon A47-005 of No 11 Squadron conducts a training sortie over the Southern Ocean in March 2018. Source: Department of Defence

Boeing P-8A Poseidon A47-002 of No 11 Squadron conducting a low-level flyover with its stores compartment open in May 2019. Source: Department of Defence

In 1987 the United States Navy (USN) sought a replacement for the long serving P-3 Orion. In 1989 under the Long Range Air Anti-submarine Warfare (ASW) Capable Aircraft (LRAACA) program, Lockheed was awarded a contract to produce what was to have been the P-7. The LRAACA program, however, was terminated and the Lockheed contract was cancelled in 1990. Meanwhile, operators world-wide, including Australia, continued to upgrade and operate their P-3s to the limits of their potential.

In 2000, the USN initiated the Multi-Mission Aircraft (MMA) program. Lockheed submitted an improved new-build P-3 design, the Orion 21, while Boeing offered a militarised version of the 737-800IGW airliner with a modified 737-900 wing. The Boeing model number is 737-8VFER or 737-800ERX. Despite Lockheed's long line of successful land-based maritime patrol aircraft, Boeing's 737 MMA was accepted, and a development contract awarded in June 2004, followed by an initial order of five aircraft as the P-8A. The first test aircraft flew on 25 April 2009 and low rate production was approved in August 2010.

Australia was closely monitoring the MMA/P-8A program and in July 2007 announced the P-8A as the preferred replacement for the AP-3C Orions, which by then were well into their third decade of service and suffering from increasing corrosion and fatigue (see entry A9 in the third series). In December 2011, under Project AIR 7000 Phase 2B, the Australian Government approved participation in the cooperative development of the P-8A with the USN.

The first production P-8A was delivered to the USN in March 2012 and full-rate production commenced in January 2014. By this time, the P-8A had been officially named Poseidon. India, meanwhile, became the first export customer, ordering a modified version known as the P-8I Neptune which entered service with the Indian Navy in 2013.

In February 2014, the Australian Government announced plans to order eight P-8As and a further four in January 2016 under a co-operative program with the USN. The aircraft were allocated the RAAF serial prefix A47 starting with A47-001 and they would replace the AP-3C Orions of No 11 Squadron at RAAF Edinburgh. The 2016 Defence White Paper stated that fifteen aircraft were planned to be in service by the late 2020s.

In preparation for delivery, aircrew and maintenance personnel were attached to the USN at Naval Air Station (NAS) Jacksonville, Florida to build experience and assist with both USN and RAAF P-8A training. The first RAAF P-8A, A47-001, flown by a No 11 Squadron crew arrived in Australia on 16 November 2016. By December 2019, twelve aircraft had been delivered.

By then RAAF P-8A training had transitioned to No 292 Squadron at RAAF Edinburgh. An essential element of the P-8A acquisition was a suite of advanced training systems and simulators for aircrew and maintenance personnel which greatly reduced the percentage of flight time required for training. The new capability also included major new facilities at RAAF Edinburgh which co-located operations, aircrew and maintenance, and facilities at the forward operating bases at RAAF Darwin, RAAF Pearce and RAAF Townsville.

While based on a commercial airframe, the P-8A is built specifically as a military aircraft with additional strengthening for low-level operations, underwing weapons hard points, a weapons bay and advanced internal fire self-suppression. It is compatible for air-to-air refuelling with the RAAF KC-30A and other boom fitted air-to-air refuellers. An internal fuel capacity of almost thirty-four tonnes allows the P-8A to conduct low level anti-submarine warfare missions at a distance of greater than 2000km (1243 miles) from base.

The P-8A Poseidon has advanced sensors and mission systems, including the AN/APY-10 multi-mode radar, AN/AQQ-2(V)1 acoustics receiver and processor with four times the processing capacity of the AP-3C, WESCAM MX-20HD Electro Optical system and ALQ-240 Electronic Support Measures. One hundred and twenty-nine sonobuoys of all types are able to be carried and launched internally along with a range of search and survivor supply stores. Unlike the AP-3C, the P-8A is not fitted with a Magnetic Anomaly Detector (MAD).

Weapons include up to five Mk.54 Light Weight Torpedoes carried in the weapons bay. Anti-surface warfare (ASUW) capability is provided by up to four AGM-84D Block 1C Harpoon air-to-surface missiles carried on underwing pylons

P-8A Electronic Warfare Self Protection (EWSP) systems are the Large Aircraft Infrared Countermeasures (LAIRCM) laser-based system and the ALE-47 Countermeasures Dispensing System (CMDS).

The P-8A has an extensive communications system including radios and data links across VHF, UHF, HF SATCOM and secure networking. Future cooperative development and open system architecture will see increased networked operations and data fusion and weapons and sensor improvements.

The RAAF aircraft is essentially identical to the USN P-8A and will be updated continually under a spiral development program in which changes are introduced incrementally as capability matures. Shared acquisition, engineering and logistics functions and cooperative development are intended to provide sustainment efficiencies for the P-8A fleet.

By 2018, the P-8As had replaced No 11 Squadron's now-retired AP-3C Orions and were conducting routine operations around Australia and the region including missions from Butterworth in Malaysia under Operation *Gateway* and border protection under Operation *Resolute*.

It did not take long for Australia's P-8As to gain public interest. April 2018 saw the first P-8A deployment to Kadena Air Base at Okinawa, Japan, to conduct maritime surveillance operations as part of Operation *Argos*, Australia's contribution to the multinational effort to enforce United Nations Security Council sanctions against North Korea. During an Operation *Argos* deployment, an RAAF P-8A assisted in the search for five US Marine Corps airmen missing off Japan following a mid-air collision in December 2018.

In October 2019, a P-8A deployed to the Middle East Region under Operation *Manitou* as part of the United States-led International Maritime Security Construct (IMSC) working alongside coalition partners to support freedom of navigation in the region. More recently and closer to home, a P-8A conducted surveillance over areas devastated by the unprecedented Australia-wide bushfires during Operation *Bushfire Assist* in January 2020.

Australia is acquiring the MQ-4C Triton Remotely Piloted Aircraft System (RPAS) to operate alongside the P-8As from the early 2020s (see entry A57 in the third series). Together they will be complementary elements of the Maritime Intelligence, Surveillance, Reconnaissance and Response (MISRR) 'family of

systems' with the MQ-4C conducting persistent high-altitude broad area ISR missions, allowing the P-8A to be more dedicated to providing responsive ASW and ASUW, search and rescue response and ISR capability.

Still in its early days of RAAF service, the P-8A Poseidon has already shown its potential for providing Australia with the ability to meet the challenges facing Australia's maritime security in the future.

TECHNICAL DATA: Boeing P-8A Poseidon

DESCRIPTION:

Maritime intelligence, surveillance, reconnaissance and response aircraft.

POWER PLANTS:

Two 121.4kN (27 300lb) thrust CFM56-7B27A turbofans.

DIMENSIONS:

Span 37.67m (123ft 7in); length 39.50m (129ft 7in); height 12.83m (42ft 1in).

WEIGHT:

Max loaded 85 821kg (189 200lb).

ARMAMENT:

Max weapons load 5670kg (12 700lb) including Mk.54 lightweight anti-submarine torpedos, high altitude anti-submarine warfare weapon capability, AGM-84D Harpoon anti-ship missiles, 129 internally-launched sonobuoys, eleven weapons stations.

PERFORMANCE:

Max transit speed 907km/h (564mph); range cruise 815km/h (506mph); ceiling 12 497m (41 000ft); max unrefuelled range 8335km (5179 miles); mission radius (four hours on station) 2222km (1381 miles).

Boeing P-8A Poseidon A47-001 of No 11 Squadron supports sea trials for the Royal Australian Navy's HMAS *Hobart* in the Gulf St Vincent off the coast of Adelaide, South Australia, in February 2017. Source: Department of Defence