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|  | **ORION**  (THE MIGHTY HUNTER)  There can be little doubt that the submarine will be a force to be reckoned with for many years to come. The impact of the German U boat packs on shipping during WWII, the development of the nuclear submarine and it's missiles of the Cold War era, the subsequent stalking of these purveyors of Armageddon by the hunter/killer boats of both sides has firmly entrenched it's place in the military hardware line-up. The once mighty battleships were made redundant almost overnight by their vulnerability to air attack by the carriers, who in turn are now threatened by the submarine, requiring a large protective screen of planes and ships to ensure their safety. In recent times the new generation of silent diesels like our Collins Class boats have added another dimension to the plot. Today there are thought to be around 650 operational submarines in the World's oceans at any time.  Early attempts at Anti Submarine Warfare (ASW) relied mostly on catching the boats on the surface to recharge their batteries, using the less than perfect radars of the day, or simply by visual sighting. The method of attack was by gunnery or rocketry if on the surface or depth charges if submerged. The evolution of the snorkel that allowed the diesels to run while at periscope depth, and later the nuclear boats that remained submerged for months at a time would require a whole new approach.  In the 50s and 60s technology advanced at a rapid pace, new radars capable of picking out a periscope, sniffers to detect diesel fumes from the snorkel, the Julie/Jezebel sonobouy that could hear submerged boats whether running or lying silent, the MAD detector that measured variations in the Earths magnetic field caused by the steel hull of a submarine, and most importantly the Mk44/46 torpedoes specifically designed to search for and attack a submerged submarine.  The Lockheed Aircraft Company had developed a patrol bomber for the US Navy, the P2V-1 in the late 1940s and using this basic design ended up with a dedicated ASW aircraft the Neptune P2V-4/5 in 1949/50. This aircraft incorporated all of the ASW technology that existed at that time and would continue to evolve over the years culminating in the highly successful P2V-7 in 1962.  By this time the aircraft had reached the limits of power plant design and available space to house all of the electronics required.  The company had in the meantime produced a short haul airliner for civilian use, the Lockheed Electra, a low winged medium sized airframe using four of the Allison 501 turboprops, (civilian versions of the T-56). In response to a US Navy requirement for a replacement for the Neptune Lockheed submitted a proposal based on the Electra airframe, shortened by 2.13m, strengthened, with an un-pressurized 3.91m long bomb bay grafted onto the underside of the fwd fuselage, increased internal fuel capacity and more powerful T56-A-10W engines. The internal ASW fit remained much the same as that of the Neptune. The proposal was accepted and the first Orion P-3As were delivered in Aug 1962, followed in 1965 by the P-3Bs, this version having more powerful T56-A-14 engines, revised electronics and a greater all up weight. Capable of a top speed in excess of 700kmh, a duration of 17 hours and with a comfortable pressurized crew compartment this was a great improvement on the Neptune.  In 1969 deliveries began of a completely revised version of the Orion, the P-3C. The entire ASW/MR suite was replaced and now computer controlled, the internally loaded/launched sonobouys were moved to cartridge fired tubes under the rear fuselage, the searchlight was replaced by an IR system for night surveillance and the outer wing stations could now carry and launch Harpoon missiles. This version soon became update I and then update II in 1977, each update incorporating improvements in the computers and electronics.  As part of the RAAF reorganization post WWII No 11 Sqn was reformed at Pearce WA in 1950 flying the GR version of the Mk30 Lincoln, in November 1951 they began re-equipping with P2V-4/5 Neptunes (now re-designated P-2Es) In 1954 they also moved to the Richmond base near Sydney. No 10 Sqn was also reformed at Townsville and in 1953 began operating the Mk31 long nose MR version of the Lincoln, due to corrosion problems these aircraft were withdrawn from service in 1961 and some nine months later the squadron began to re-equip with P2V-7 Neptunes, soon to be re-designated SP-2H.  November 1964 saw the decision to re-equip 11Sqn with P-3B Orions, ten of which were ordered for delivery 1968, they would also move again, this time to Edinburgh SA.  By 1972 10 Sqn's SP-2H Neptunes were also beginning to show their age and serious consideration to their replacement began. Considering the RAAF already operated Orions the New P-3C was the preferred option. An order for eight aircraft was placed in 1975 (later increased to ten); they would be of the update II version and would join 11 Sqn at Edinburgh. The first aircraft arrived in Australia 26May 1978. Following a survey on the desirability of upgrading the old P-3Bs to near P-3C standard in 1980 it was deemed more economical to purchase a further ten P-3Cs and in 1981 a deal was done with Lockheed, the old P-3Bs would be traded in on the new P-3Cs, the first aircraft arriving at Edinburgh on 7th December 1984. As these aircraft were of update II1/2 492 Maintenance Squadron requested that they be designated P-3W to prevent any confusion during maintenance.  10 Sqn and 11 Sqn with the addition of 292 (training) Sqn formed the basis of 92 Wing. Although individual squadron markings were applied to aircraft they were in fact pooled for general use.  In the mid 1990s studies were undertaken in an attempt to prolong the operational life of the Orions. This culminated in the issue of Project Air 5276; this would require the provision of a comprehensive flight simulator, the acquisition of three refurbished ex USN P-3B Orions for aircrew training and transport duties (To be designated TAP-3Bs), and finally a complete refit of the entire fleet. Deliveries of the TAP-3s were delayed due to a number of causes, the deliveries were 1997, 1998, and 1999, by Feb 2004 they had all been retired. For some time they were empty hulks awaiting disposal, they were eventually scrapped in 2008.  The first P-3C was modified by L-3 Communications (formerly Raytheon) in the USA, subsequent aircraft were completed by that company's base at Avalon. Changes included a new mission computer, radar, acoustics tracking system, navigation system, communications equipment and some cockpit displays. A low visibility colour scheme was also adopted. The resulting aircraft had a much enhanced Electronic Support Measures (ESM) capability, it was uniquely Australian and was designated AP-3C. Again there were considerable delays with the final aircraft not delivered until Dec 2004.  Subsequent to this major refit there have been a number of updates. The Star SAFIRE III electro optical surveillance system in a retractable chin turret under the nose radar provides real time high resolution colour TV and infrared imaging for surveillance duties, in keeping with the Orion's increased overland intelligence gathering requirements. A missile self-protection suite consisting of infrared sensors, radar lock on sensors and decoy launchers controlled by an on board computer provide a degree of safety whilst operating in a hostile environment (Middle East Area of Operations). The weapons firing system is being upgraded to enable firing of the Harpoon II missile, with provision for a new long-range precision stand off weapon. The Mk 46 torpedo is to be replaced by the EUROTORP MU-90 lightweight torpedo and relevant hardware/software.  The Orions from 92 Wing are involved in regular deployments both in Australia and overseas whether on operational duties or training exercises. Australia has an international responsibility for search and rescue (SAR) covering a wide area around our coastline, to cover this an Orion is on permanent SAR standby. Over the years many rescues have been achieved. Probably one of the most notable was the location in Jan 1997 of the upturned hull of Tony Bullimore's yacht, 1500 miles south of Perth in the Great Southern Ocean under less than favourable weather conditions.  What of the future? On 30May2008 I attended a function at RAAF Base Edinburgh to commemorate the 40th anniversary of the arrival of the Orions at Edinburgh. It is planned to replace the Orion fleet by the year 2018 (Project Air 7000) with a mix of unmanned and manned aircraft, probably a derivative of the Global Hawk and the 737 based P-8A MMA Poseidon. Until then upgrades to the AP-3Cs will continue as new technology becomes available.  On 25th of November 2012 a parade and medal presentation ceremony was conducted at the El Minhad Airbase in the United Arab Emirates, the parade was to mark the disbandment of Operation Slipper Orion detachment Task Unit 633.2.4.  During the nearly ten years deployment the aircraft and crews from 92 Wing had flown 2,410 missions and 22,535 flying hours, consisting of maritime surveillance in the Arabian Gulf and north Arabian Sea, overland intelligence gathering in Iraq and Afghanistan and more recently anti piracy patrols near the Horn of Africa.  Upgrades to the aircrafts ESM capability has enabled real time vision to be supplied to ground forces during overland surveillance missions via the STAR Saphire 111 EO/IR and Tactical Common Data Link. This information on enemy positions and IED placements has been invaluable to the Coalition Forces.  One of the two aircraft on deployment returned in October 2012.  The final flight of the deployment, a 10-hour Maritime Intelligence, Surveillance and Reconnaissance mission (MISR) was carried out by A9-665 on the 21st November 2012,A9-665 returned to Edinburgh on 29th November 2012. |

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| A9-756 | 160756 | AP-3C | 5666 | 09/78 | Out of service 1993-96 due to extensive corrosion repairs.  In service 10 Sqn pre AP-3C. Participated in FINCASTLE 98. Noted with 10 Sqn tail art Edinburgh 27/10/2009.  Believed in service 10 Sqn 09/2011. Noted with 10/11 Sqn 75th Anniversary nose art at Edinburgh 04/10/2014. Arrived at South Australian Aviation Museum 10/12/2017. |

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| **A9-756** | **5666** | **160756** | **01SEP78** | **AP-3C LO-180** |