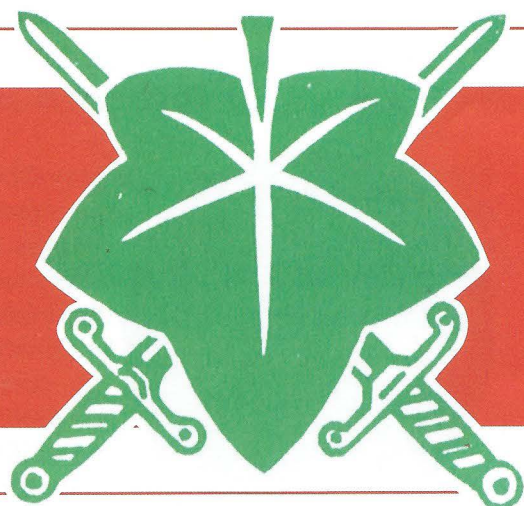


THE FORMATION SIGN

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A VERY LONG FLY BY WIRE SYSTEM – 39 SQUADRON, RAF



First formed on 15 April 1916 as a Home Defence squadron, writes **Craig Atkinson**, 39 Squadron saw action in both World Wars and was finally disbanded on 28 July 2006 at RAF Wyton after the gradual retirement of the Canberra Photo Reconnaissance Mk 9. The Squadron's most recent reincarnation saw it reformed on 1 January 2007 at Creech Air Force Base, Nevada, to operate the Predator MQ-9 aircraft known as Reaper. 39 Squadron, which was presented with its new Squadron Standard on 23 January 2008, trains and operates alongside its USAF counterparts in the Combined Joint Predator Task Force. Although a RAF squadron, the unit also includes Royal Navy, Royal Marines and British Army personnel. April 2013 marked the completion of the first 20,000 flight hours with Reapers since their introduction in Afghanistan in October 2007.



The Reaper Remotely Piloted Air System (RPAS), originally purchased by the Ministry of Defence to provide an Intelligence, Surveillance and Reconnaissance (ISR) capability to support coalition forces in Afghanistan has grown in importance. It now provides real-time video imagery to commanders on the ground and has the capability to engage targets (in accordance with UK Rules of Engagement and the UK Targeting Directive) when armed with GBU-12 500lb laser-guided bombs and Hellfire missiles whose relatively small warhead helps minimise collateral damage. The Reaper aircraft is operated by a pilot (UK pilots have all qualified as pilots on other military aircraft) and a sensor operator, supported by a mission intelligence co-ordinator. To support current operations the Reaper is

launched from an airfield in Afghanistan by crews deployed there. Once airborne the mission is flown by the 39 Squadron crews from Creech in the USA, before control is handed back to the in-theatre crew for landing.

"Once crews have completed their pre-flight checks they walk down a secure staircase to the hangar, dubbed the 'bubble' by pilots. There is a large area penned in by a security perimeter containing the cabins which function as the Reaper cockpit, which looks exactly like its counterpart in Afghanistan, right down to the camouflage colour scheme. Since its introduction in 2007 Reaper has flown 54,000 hours. Originally used for surveillance, the aircraft was fitted with air-to-ground bombs and missiles in 2008; since then it has launched more than 450 attacks." *RAF News - Friday, January 31, 2014 - 13 Sqn – RAF Waddington*

The Reaper system has a robust sensor suite for targeting imagery provided by an infrared sensor, a colour daylight electro-optical sensor and an image-intensified sensor. The laser rangefinder/designator provides the capability to precisely designate targets for laser-guided munitions. Reaper also has Synthetic Aperture Radar (SAR) and Ground Moving Target Indicator (GMTI) to give it an all-weather capability. Reaper can also provide geographic location information to ground commanders or to other systems which employ Global Positioning System (GPS) guided weapons. The aircraft also has both colour and IR nose cameras, generally used by the pilot to assist in flight control.