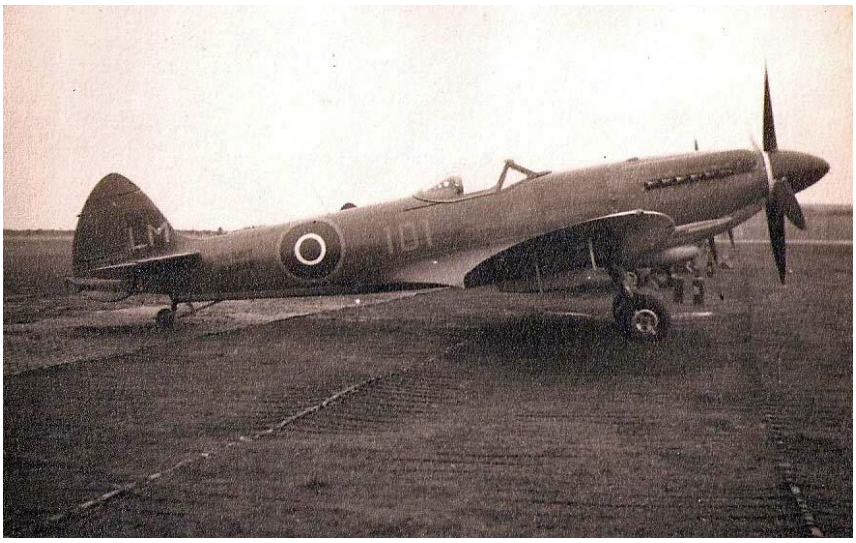
SOUTH AUSTRALIAN AVIATION MUSEUM

SIGNIFICANT AVIATION EVENTS

FIRST DECK LANDING IN A SEAFIRE



Supermarine Seafire XVII at RNAS Lossiemouth
[Photo – David Hamilton]

After going through No. 2 Elementary Flying Training School (EFTS) at RAF Yatesbury on Tiger Moths, and No. 22 Service Flying Training School (SFTS) at RAF Ouston on Harvards, I arrived at Royal Naval Air Station (RNAS) Lossiemouth for No. 1 Operational Flying School (OF) in November 1947 and started flying Seafires, a mixture of XVs with a high fuselage behind the pilot and XVIIs with a cut down fuselage and bubble canopy. The main difference between the Seafire and the Spitfire was (a) an arrester hook for engaging one of the arrestor wires stretched across the landing area of a flight deck. The earlier models of Seafires, and the first XVs were fitted with an "A" frame hook hinged from the bottom of the fuselage, 10 feet behind the undercarriage. All later ones had a "sting" hook located beneath the rudder. It was telescopic and increased in length when released, a much more satisfactory arrangement, as it hung lower on the approach, was not so susceptible to bounce and held the tail down, thereby preventing the propeller from hitting the flight deck. A green "down" indicator light was fitted on the instrument panel.

The change to sting hooks avoided such events as the shambles during the invasion of Sicily in WW2. Seafire III's were operating from Woolworth carriers (converted merchant ships) with a top speed of about 16 knots and during the operation there was very little wind and even less sea room. So a Seafire has to approach at a higher than normal relative speed, catches a wire with the under fuselage arrestor hook, pivots forward, the propeller strikes the deck and shatters. It did not help that many of the pilots had little deck landing experience. After some deliberation the RN solved the problem by sawing up to 6 inches off the prop blades. Apparently it made very little difference to the aircraft performance.

Other differences were (b) folding wings, done manually by ground crew; (c) longer stroke oleos, to absorb the extra stress of deck landing; (d) both marks were fitted for Rocket Assisted Take Off Gear [RATOG]; (e) in one squadron Seafires were fitted with treadless tyres so that the wheels could skid sideways a little on landing, relieving stress on the undercarriage; and (f) a strut was fitted in front of the tail wheel to avoid it being torn off by an arrestor wire.

The XVII was also cleared for tail-down launches on the carrier's catapult, called an accelerator in those days. These adaptations were not relevant during our Course as we were operating from airfields only, but there were important changes to a normal training curriculum. From the first flight at Lossiemouth, for the rest of one's flying career, the landing circuit was reduced from 1,000 feet to 300. This was the standard height for carrier work so every airfield landing approach was used to copy elements of a deck landing. No longer was the circuit flown as a square, but two 180 degree turns with short straights in between. The ideal carrier landing interval was 25-35 seconds, because the shorter the time the carrier was on a steady course into wind, the shorter was the time she was a sitting duck for a submarine attack, bearing in mind there could be a land-on of several aircraft. This interval was not attempted ashore because of slipstream problems. Another difference was a large number of flights over the sea, most of them at low level. These are written in my log book as Sea Recce or Sea Navex. The longest I did, with a full centreline drop tank, was 2 hours at 300 feet. With nothing but water in sight one became very sensitive to any change in engine note, and so, with the resulting increase in pulse rate, frequent checks of engine temperature and oil pressure gauges became commonplace. The only navigation aid was a magnetic compass, always unsteady, and a gyro Direction Indicator set to the runway heading before takeoff; this drifted during the sortie. Our radio was a 4 channel VHF of dubious range at low altitudes. We wore a leather helmet, RAF standard goggles and a two-piece waterproof immersion suit. The trousers had built-in rubber boots and a rubber waist band which was rolled up with the similar band on the jacket. Also built in was a pee tube, obviously designed by an elderly virgin, as it was far too small to use. In desperate times the only answer was to fill a trouser leg. The material was clever in that it breathed while dry but on becoming wet the tissue swelled and became waterproof.

On top of the suit was a bulky kapok filled Mae West and one sat on a hard dinghy, packed to ensure that the CO_2 inflation bottle stuck into one's backside; in those days there were no highly organized air-sea-rescue facilities or helicopters to pick you out of the drink.

After OFS I went to 780 naval air squadron at RNAS Culdrose for an Instrument Flying Course and then to No 3 Ferry Flight, RNAS Anthorn where, among other aircraft, I flew the Seafire 46 with contra-rotating propeller. They had fixed wings and only 24 were built. The extra weight in the nose and extra propeller drag when throttled back made three point landings more difficult.

Supermarine Seafire 46 with contra-rotating propeller. This was the actual aircraft I flew – LA544
[Photo – Peter Arnold Collection]

In May 1948 came the important move, to RNAS Milltown, satellite airfield of Lossiemouth, for ADDLs, (Aerodrome Dummy Deck Landings). In those days deck landings (DLs) were controlled by a DLCO (Deck Landing Control Officer), who stood at the port side of the flight deck, aft, and signalled to the approaching aircraft using a pair of "table tennis" bats with fluorescent yellow fabric centres, correcting the pilot if he deviated from the proper approach path. The signals indicated height, speed and direction corrections and were mandatory. White lines were painted to indicate a

deck area and the DLCO stood on the left hand edge of the runway, about 100 yards from the threshold. They were always experienced deck landers.

Supermarine Spitfire XVII SX336 at Old Warden 4 June 2006 with wings folded, showing bubble canopy and arrestor hook under rudder
[Photo –Peter Arnold Collection]

These gentlemen were, for obvious reasons, referred to as a "batsmen" and called "bats". The pilots, who flew circuit after circuit throughout the day to train the batsmen, were known as "clockwork mice" after a popular child's toy. Milltown had its own Wardroom and accommodation that was looked after by elderly gentlemen whose main duties were in the local whisky distilleries. I had many a sip of a powerful colourless liquid that tasted remarkably like whisky!

After about one hundred ADDLs I was considered ready for my first deck landings, to take place on fleet carrier HMS *Implacable* in the English Channel June in 1948. Flying south, refuelling at RAF Acklington and RAF Waddington on the way, we landed at RNAS Lee-on-Solent.

The positive attributes of this aircraft for DLs were good slow flying characteristics, light and responsive controls and plenty of horsepower. The negatives were the lack of vision ahead when in the landing attitude and, while there was propeller drag when the throttle was closed, the aircraft being very clean could float gracefully over the arrestor wires and into the wire barrier if a trifle over the correct approach speed. The Griffon engine version had a finer propeller pitch, which gave a bit more drag than the earlier Merlin engines. The prop rotated in the opposite direction to the Merlin, an important point if flying both types.

The Carrier

The flight deck teams, consisting of aircraft handlers, squadron artificers, flight deck engineers and emergency crew, ready the deck. The 10 arrestor wires, which lie across the landing area, are raised about three inches off the deck by metal bowsprings, easier for the aircraft's hook to catch. The bowsprings are retracted when not in use. The centre spans of the arrestor wires are inspected for wear regularly and changed when necessary.

HMS Albion with some crew and aircraft paraded
[Photo – Royal Navy]

Two metal wire fences, Safety Barriers, are put in the "up" position, across the deck about 200 feet past the end of the landing area, which itself was about 400 feet long, although it varied between types of carrier. If the last wire was caught an aircraft could end up with the nose very close to, or in, the barrier. In ninety-nine percent of barrier engagements there would be no damage to the pilot, except his pride. Two fire fighting crew, dressed in asbestos "Fearnought" suits take up position by the Island near "*Jumbo*", the mobile crane. The Island is the large superstructure on the starboard side containing the ship and aviation control areas, which includes Flyco, a glassed balcony sticking out of the port side of the island so that Commander (Air) and his team had an unobstructed view of all flight operations. During deck landings the Island nooks and crannies would often be packed with spectators, usually hoping for a good prang. These ghouls are known as "*goofers.*"

The batsman takes his post on the batting platform, which has a slatted, wooden, folding wind break, and is assisted by a rating armed with binoculars to check each aircraft for wheels, flaps and hook down. They have an escape chute in case an aircraft tries to savage them.

The Decklanding

Flying out from the airfield, the ship is a grand sight, steaming into wind and leaving a dead straight wake. Some carriers, in those days, had a small steam outlet front centre of the flight deck to show the direction of wind over deck. This was a hint to the Captain on the course to steer. Steaming to port of the correct course, wind coming from starboard bow, means turbulence from the Island down the landing area. Steaming a little to starboard is ideal. In cases of no natural wind the ship is at full speed and some funnel gases and turbulence are inevitable. Astern of the carrier and to port is the plane guard destroyer, with its seaboat slung out, ready to rescue any aviator who goes for a swim.

Supermarine Seafire XV landing
In foreground painted white are bowsprings holding arrestor wire clear of deck. Far right the arrestor 'sting' hook has caught a wire. Just forward of the tail wheel is a metal strut to guide arrestor wires clear of tail wheel. Note rearview mirror at top of windscreen
[Photo – FAA Museum]

Join the circuit, flying at 300 feet, up the starboard side of the Island and when ahead of the ship, throttle back, selecting the prop. pitch to fine and commence a 180 degree turn to port, which will kill off excess speed. Flying downwind at about 1,000 yards distance from the ship, lower flaps, undercarriage and hook, still reducing speed. Report '*4 green'* to Flyco, open the canopy and lock it. When opposite the Island start the final 180 degree turn, settle the airspeed down to 65 knots, about 5% above engine-on stall, and hold it there with throttle, this should ensure that the aircraft is flying in a three point attitude. Your head is strained to the left of the cockpit as far as you can and your eyes are flicking constantly between the Air Speed Indicator

(ASI) and the batsman. The port edge of the flight deck is the only part of the ship that you can see. So – ASI – batsman, ASI – batsman, ASI – batsman constantly, as you heartbeat goes up and up. Finally you flash over the rounddown, 'bats' signals ***Cut***, you close the throttle, level wings and the nose drops. A small backward movement of the control column, hold still and the aircraft thumps onto the deck. The arrestor wire brings you to a fairly abrupt halt at around 2g but you don't notice it much as you are tightly strapped in and sitting in an upright position. The aircraft will run back due to the tension on the arrestor wire, let it and then apply brakes. Two flight deck crew run to the tail, free the hook from the wire, clip it back to the up position and give a thumbs up. A burst of throttle and taxi up the deck, over the safety barriers (which have been lowered) and, guided by the handlers' signals, park in Fly One. For obvious reasons the aircraft are parked very close together and the handlers are very skilled, their signals and gestures amounting to an avian ballet on occasions. Switch everything off and leave the cockpit. **You have now become a member of one of the most exclusive clubs in the world**.

Clear the area in case the next aircraft jumps both barriers - this has happened! Go through the door into the Island, brief your plane Chief on the serviceability of the aeroplane, and go up to Flyco to be congratulated (or not) by Commander (Air).

The two main hazards while deck landing, in those piston engine days, were (1) an engine failure, when one fell out of the sky without much chance of survival and (2) a poor approach involving a late "wave off' when low and slow - with a small aeroplane and powerful engine the danger of a torque stall (the aircraft turning round the propeller) was high and the result nearly always fatal.

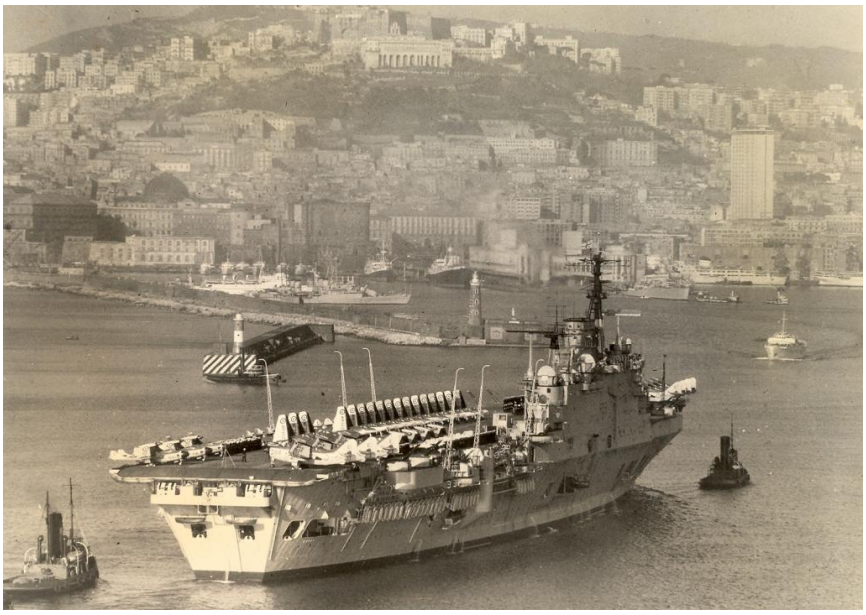
Seafire XV on takeoff has just passed over one of the lowered safety barriers. Flaps can be seen at the 18 degree position—ailerons are slightly left wing down to counteract propeller torque. *Rudder trim tab is set right, rudder slightly left also to counteract torque. 'T' on tail designates carrier HMS Theseus*

[Photo – FAA Museum]

However, back to the deck. If the pilot is doing DL training with a clear deck he will be pushed back and readied for another take off and landing. As the aircraft flap position is only UP or DOWN the flaps are selected 'down' and a wooden wedge, made by the "chippy", is held by the ground crew under the rear edge of each mainplane. Flaps are then raised and clamp the wedges in place giving 18 degrees of flap for takeoff. When the flaps are lowered on the downwind leg the wedges fall out. The Seafires were reputed to be fitted with spring loaded pins to do the job, but I never saw them.

The carrier take off trim was the same as for airfields but, with the wind over deck, the tail came up immediately and care had to be taken to avoid "tipping" the prop, due to the small clearance. Similarly, rudder trim could be wound off earlier. Once airborne the pilot jinks to starboard to clear

the deck of slipstream and carries on to do the next landing. Eight trouble free landings were required for qualification on a specific type of aircraft.



HMS Eagle approaching Athens, Acropolis top centre
[Photo – Royal Navy]

When the squadrons and the flight deck crews are worked up, the landing intervals are amazingly small, 25 to 35 seconds, and the whole team take great pride in their efforts. The presence of another carrier ensures even fiercer competition. With the advent of heavier aircraft and the jet engine, the circuits became bigger and the approaches longer but of course the pilot had a first class view over the nose. The further improvements of the angled deck, deck landing mirror sight and the steam catapult (all three British inventions and adopted worldwide) made life somewhat easier - until the aircraft got larger while our carriers did not, which introduced new hazards for the naval aviator, especially when deck landing at night.

Commander David "Shorty" Hamilton, Royal Navy
Honorary Member
South Australian Aviation Museum
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