



# MOSQUITO WITH

**ABOVE**  
An official photograph of Mosquito FB Mk.XVIII NT225 on August 5, 1944. This 6Pdr-armed 'Tsetse' flew with 248 Squadron out of Portreath, Cornwall.

**H**aving flown operationally as a fighter, night-fighter, fighter-bomber, bomber, photo-reconnaissance and in many other roles, the de Havilland DH.98 Mosquito can probably be considered to be the first multi-role combat aircraft and one of the most versatile aircraft ever made. Possibly one of the least known variants was the FB Mk.XVIII, often referred to as the 'Tsetse Mosquito' as it possessed a particularly powerful sting!

Of its myriad roles, a task that particularly suited the Mosquito was anti-shiping patrol. Its combination of speed, range and agility, plus the twin-engine configuration made it ideal for the interdiction of axis

shipping and for use as a convoy escort to help deter or destroy the U-boat scourge. It is generally accepted by historians that winning the Battle of the Atlantic was pivotal to ultimate victory and that the Kriegsmarine's U-boat fleet posed the greatest danger to Britain.

Royal Navy planners were particularly keen to destroy U-boats entering or leaving the Bay of Biscay and initially the Mosquito seemed perfectly suited to this mission. However, its armament of four .303 Browning machine guns and four 20mm cannon – lethal against aircraft and thinly skinned trucks – soon proved ineffective against a submarine's steel-plated pressure hull,

and other weapons were examined. Although the RP (rocket projectile) seemed an obvious choice (the difficulty of hitting a small, moving target with bombs is evident) another idea was to fit Mosquitos with a larger gun, and the FB Mk.XVIII was born.

## MOSSIES, AUTO-LOADERS, AND CIGARETTES

In March 1943 the Ministry of Aircraft Production asked de Havilland to study the feasibility of fitting such a weapon into a Mosquito, principally a variant 6Pdr (57mm) anti-tank gun. De Havilland's chief designer, Ronald Bishop, quickly calculated that carrying the gun and its ammunition were



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## DAVE UNWIN EXAMINES THE 'BIG GUN' VARIANT OF THE LEGENDARY DH.98.

well within the aircraft's capabilities – in fact the company had already initiated a feasibility study into fitting a heavily armoured Mosquito with a huge 94mm gun for dedicated ground-attack the year before. As the 6Pdr, its associated components and ammunition would weigh around 1,800lb (~815kg), it was well within the Mosquito's load-carrying capabilities, while the gun's hydro-pneumatic recoil system lessened the recoil to the extent that it was not expected to create significant problems.

Selecting a suitable gun proved

relatively straightforward, but making it automatic was more of a challenge, for although larger guns were fitted to aircraft during World War Two (for example, a few B-25 Mitchells were armed with a 75mm gun), these had to be loaded manually. The gun was intended to be a fully automatic weapon, capable of firing in bursts, (although in practice most pilots fired single shots). The 6Pdr chosen was a QF (quick-firing) anti-tank weapon with one-piece ammunition, but was still single shot. ▶



**LEFT**  
An armorer holds up a 6Pdr shell under the nose of the so-armed Tsetse Mosquito.  
(MARY EVANS PICTURE LIBRARY)



**RIGHT**

The underside of a Tsetse Mosquito, the large gun is clearly visible.  
(KEY COLLECTION)

The Molins Company of Peterborough (its stock-in-trade was building specialised machines for making and packaging cigarettes) had been contracted by the War Department to design and build an automatic feed mechanism for the weapon the previous year, envisaging that it would be fitted to armoured cars. The auto-loading system carried the ammunition stacked in columns, with either four or five shells in each clip (navalised versions used on motor torpedo boats loaded from the side and could hold six rounds). An electrically operated 'charger arm' moved another clip into place as the previous one was expended, allowing the heavy rounds to be fed automatically into the breech without links. The gun used a recoil action to cycle the mechanism, with the spent cases being retained in the fuselage (they could not be ejected overboard in case they struck the tailplane). This weapon became known as the M-Gun or simply the 'Molins', although its official title was the rather wordy 'Airborne 6-pounder Class M gun'.

**BELOW**

A 248 Sqn Mosquito dives on a German U-boat.  
(TOPFOTO)

**BOTTOM**

The improved two-gun nose configuration.  
(KEY COLLECTION)



**SEVEN MONTHS FROM PENTO RANGE**

It may seem astonishing when compared to the gestation time of a modern weapons system, but it took less than seven months from the original idea being mooted to the type becoming operational. Initial enquiries into the possibility of fitting a 6Pdr to a Mosquito began in mid-March, and during April de Havilland fitted a regular gun into the nose of a crashed aircraft to study the effects of blast on the fuselage. The following month a FB Mk.VI, HJ732 was moved into the experimental shop to begin installing the gun and its associated components. The barrel was mounted just to starboard of the aircraft's centreline and inclined slightly downward, with the

recoil spring faired beneath it. A tremendous advantage to the Hatfield team was the Mosquito's primarily wooden construction, which not only allowed new components to be machined and installed very easily, but also ensured the airframe could absorb the considerable recoil.

Work continued at a rapid pace and by early June the cannon was satisfactorily tested on the Hatfield butts, with an entire magazine being emptied in a single burst. This must have been a truly spectacular sight (and sound) as flames up to 30ft (9m) long spouted from the barrel with each round! Incidentally, research for this article revealed that there is real uncertainty around the size of the magazine, with 21, 22, 23 and 25 shells all being quoted. Having studied several photographs of the installation, the most likely arrangement appears to have been two columns of five rounds and three of four, with one round in the breech, for a total of 23.





**“AN AUTOMATIC MUZZLE CAP [WAS] FITTED TO PREVENT THE PROBLEM OF ‘BLOW-THROUGH’ WHEN THE BREECH WAS OPENED... AS WITHOUT IT A 300MPH GALE WOULD HAVE BLASTED DOWN THE BARREL”**



### STEADY STREAM OF FIRE

The cyclic rate of fire was just under one round per second. As no problems with blast or recoil had been discovered, on June 9 HJ732 was flown to Boscombe Down for air firing trials, where it was found that the feed unit would not work above 2.5g, a problem that had been predicted by the RAF Gun Section. The charger arm and other parts were strengthened and an automatic muzzle cap fitted to prevent the problem of 'blow-through' when the breech was opened. This was an important part of the design – as without it a 300mph (~485km/h) gale would have blasted down the barrel – yet it needed to be fail-safe and was designed so that – if it did not open – a shell could safely pass through it. The uprated charger arm cured the g-related issues, and (as long as sideslip was avoided while firing, which could cause a jam) the M-Gun was quite reliable.

By July a second Mosquito had been converted. This machine featured an extra 900lbs of armour around the nose and cockpit, vital as U-boats carried several AA guns. By now HJ732 had fired hundreds of rounds

and although the gun was proving very accurate and reliable,

blast and recoil effects were beginning to show on the airframe and flaps. It was decided to delete the outer pair of .303 machine guns (the M-Gun having replaced the four 20mm cannons) and stiffen the nose area with tie-rods. The remaining .303s benefited from having enlarged ammunition tanks. The gunsight was not the usual reflector type fitted to

fighters, but a Barr & Stroud Mk.IIIa, a model more typically fitted to turrets. It had two graticules (aiming points); one for the Brownings and one for the M-Gun, although in practice pilots often used the tracers from the machine guns as a sighting aid because the trajectories of the two different projectiles converged at around 400 yards. A steady stream of fire from the pair of machine guns also kept the U-boat's gunners' heads down. A final modification was the installation of a 65-gallon fuel tank in the fuselage, and the variant – now known as the FB Mk.XVIII – entered service.

Having devised the best way to attack a U-boat by practising on a wooden conning tower installed on

a range (straight and level, below 100ft worked best), a special detachment of crews from 618 Squadron, commanded by Sqn Ldr Charlie Rose, DFC, DFM, were posted to Predannack in Cornwall to fly alongside the Beaufighter-equipped 248 Squadron. Operations began over the Bay of Biscay in October, with the crews of 618's first two Tsetse Mosquitos (HX902 and HX903) being specifically briefed to only attack U-boats in order to keep the M-Gun a secret. Sadly, HX902 was shot down on November 4 by two armed trawlers that were escorting a U-boat, killing Sqn Ldr Rose and his navigator Flt Sgt Cowley. Their deaths were avenged three days later when Flying Officer Bonnett ▶

**LEFT**

*The M-Gun development aircraft, FB.VI HJ732..*

*(KEY COLLECTION)*

**BELOW**

*A 6Pdr-armed Mosquito of 248 Squadron behind a Molins auto-loading 6Pdr Mollins fitted to a gun carriage.*







**ABOVE**  
A publicity shot of the 'Mosquito's U-boat strafing gun'. The 6Pdr is just visible beneath the nose. (TOPFOTO)

in HX903 hit a U-boat's conning tower with several shells, forcing it to dive in a cloud of smoke.

Initially the Tsetses were escorted by 248's Beaufighters, but it was soon reasoned that it was logistically and tactically practical for 248 to convert to Mosquitos and, with more FB Mk.XVIII's being delivered, 618 was absorbed into 248. A typical anti-shipping strike consisted of four FB Mk.VI's as escorts with a pair of FB Mk.XVIII Tsetses, and with both types now also carrying RPs along with their machine guns and cannon and – in the case of the Tsetses – the M-Gun, it was a formidable force.

### COVER OF DARKNESS

To further complicate matters for the Germans, Alan Turing's team at Bletchley Park had successfully broken the Enigma cypher. This allowed Coastal Command to plan U-boat interceptions more effectively and,

during 1944, 248 Squadron recorded many notable successes against ships and submarines. One Tsetse, flown by Sqn Ldr Tony Phillips, even managed to shoot down a Ju 88 with the M-Gun. However, it was against the U-boat menace that the Tsetses played a pivotal role, in May 1943 German High Command issued an order that – when confronted by allied aircraft – the U-boat should not crash-dive but stay on the surface and fight. The most common U-boat class, the Type VII, carried several 20mm cannon and in a duel with a large, slow-moving Catalina or Sunderland the outcome was by no means certain. Conversely, if the U-boat did crash-dive, allied aircraft could attack with depth charges.

However, dealing with a flight of Mosquitos was considerably more difficult and, not only was the order rescinded before the end of the year, but Admiral Dönitz was eventually

forced to order U-boat captains transiting the Bay of Biscay to sail on the surface under cover of darkness. This greatly impacted U-boat operations, as while a Type VII could make almost 18kts on the surface, this reduced to less than eight when submerged.

The success of the Tsetses meant that a second squadron, 235, would be equipped with FB Mk.XVIII's. This squadron would eventually join the famous Banff wing, based in Scotland, and fly many strikes against shipping off the Norwegian coast. Although the 'big gun Mosquitos' (as well as the M-Gun a few FB Mk.XVIII's were fitted with the 40mm Vickers S gun instead) proved quite effective, only about 28 were built.

Why was the RP considered a better weapon, even though the M-Gun was demonstrably more accurate? Although the oft-quoted statistic about a salvo of 60lb RPs being equivalent to a broadside from a destroyer or cruiser is arrant nonsense, the RPs did pack more punch than the M-Gun. Furthermore, the rocket rails could be adjusted slightly so that a salvo struck simultaneously above and below a target's waterline. Another significant disadvantage was the heaviness of the gun, which still had to be carried once all the ammunition had been fired, whereas the 'zero length' launch rails weighed very little. Furthermore, although the rails did add considerably more drag, they could be removed quite quickly if necessary, whereas the M-Gun was permanently installed. ☉

**RIGHT**  
Several 248 Squadron Mosquitos attack a German minesweeper in August 1944. (AIR HISTORICAL BRANCH)

