The QF 3,7 AA Gun (Quick fire 3,7 inch)

Britain's primary heavy anti-aircraft gun of WW2



The QF 3.7 after its restoration and painting in the correct Olive Drab

The 3.7-Inch QF AA in the Sandstone collection was Britain and the Commonwealth's primary heavy Anti-Aircraft gun during World War II. It was roughly the equivalent of the German 88mm Flak and American 90mm, but with a slightly larger calibre of 94 mm. It was developed by Vickers in 1937, built until 1945, and stayed in service until 1959 in the UK. It was used throughout World War II in all theatres except the Eastern Front. Approximately 10 000 were built. It remained in

use after the war until AA guns were replaced by Guided Missiles, notably the English Electric Thunderbird.

In 1934, Vickers-Armstrongs produced a mock-up and developed prototypes of the weapon, which was selected over a competitor by the state Design Department and passed acceptance tests in 1936. The weight specification was exceeded, the muzzle velocity not achieved and the mechanical time fuze, No. 206, was still some years from production. The igniferous No. 199 had to be used and its lesser running time limited the ceiling. The gun passed the trials by April of the following year, and the gun production started later in the year.

On 1 January 1938, the British air defences had only 180 anti-aircraft guns larger than 50 mm and most of these were the older 3-inch guns. This number increased to 341 by the September 1938 (Munich Crisis), to 540 in September 1939 (declaration of war), and to 1,140 during the Battle of Britain. Production continued until 1945, averaging 228 guns per month throughout the period. Guns were also manufactured in Australia, at the Defence Explosive Factory Maribyrnong; and in Canada, at Canadian General Electric Works in Peterborough, ON. Being a high-velocity gun, with a single charge and firing substantial quantities of ammunition, meant that barrel life could be short and by the end of 1940 there was a barrel shortage leading to some barrels being manufactured in Canada. In total there were 6 different types of barrels eventually of which the Mk6 could reach up to 50,000 feet and be effective on high altitude bombers but for was not particularly successful with tanks.

The barrel could elevate from -5 degrees to 80 degrees and rotate 360 degrees, the gun could be deployed in 15 minutes.

In British service, the gun replaced the 3-inch AA gun in HAA (Heavy Anti-Aircraft) batteries and regiments of the Royal Artillery, usually grouped into specialist AA brigades of Anti-Aircraft Command or the field armies. Each regiment usually had three batteries, each of eight guns in two troops. Over 160 of these HAA regiments, RA, plus five of the West African Artillery and two each for the Royal Marines, Hong Kong-Singapore Artillery, Royal Malta Artillery and East African Artillery were eventually formed. Other World War II users were India (about 14 regiments), Canada (two or three regiments) and Australia (equivalent of about 13 regiments).

South African HAA Regiments were also equipped with this weapon, and it was still in use in the National Service units in the late 1960s and 70s. A visitor at Stars of Sandstone 2013 had done his Military Service on these Guns and described some of the drills involved in setting up the Gun. He said it was coupled to a ‘Predictor’ which could track an incoming plane and make settings which the crew could copy, to be on target. He also said it was never transported unless the barrel was lowered into its cradle.

It might also help to understand that it is not expected that the projectile actually hits the enemy plane, rather that it explodes in its vicinity (hence the timing of the fuze for the altitude) and that shrapnel from it would damage or destroy the plane.

It is also perhaps not universally known that the colloquial expression ‘Flak’ actually comes from the German word for an Anti-aircraft Gun: ***Fl****uga****a****bwehr****k****anone*



A rear view of the QF 3.7 gun

Specifications:

Weight: 9 317 kg Length: 4.96 metres Barrel length: 4.7 metres Crew: 7 Shell weight: 28 lb. (12.7 kg) Calibre: 3.7-inch (94 mm) Elevation: -5 to +80 degrees Traverse: 360 degrees
Rate of fire: 10 – 20 Rounds per Minute Maximum range: Horizontal: 18800 metres Ceiling: Up to 45 000 ft. (13717 Metres)

Two versions of the gun were produced. One (as per this example) used a wheeled carriage with four foldable outrigger trails and levelling jacks. The wheels were lifted off the ground or removed when the gun was brought into action. The other used a travelling platform with detachable wheels for guns to be used in static positions. An AEC Matador was the normal gun tractor, towing at a road speed of 25 miles per hour (40 km/h), with an into-action time of 15 minutes. It could be used as a Field piece and in an Anti-Tank role although it was much heavier than the German ‘88’.

Ammunition: Initially there were High Explosive and shrapnel shells, both fitted with a time fuze. Fuze No.199 was igniferous (i.e. powder-burning) with a maximum running time of 30 seconds. Fuze No.208, with a maximum running time of 43 seconds, became the standard fuze. A major advance in 1942 was the introduction of Machine Fuze Setter No.11. This raised the rate of fire to 20 rounds per minute. As you can see from the picture below the Sandstone gun only has a number 9 setting on the Machine Fuze Setter dated 1941.



Some builder's information on the QF 3.7. relating to the fuze system

Molins Machine Company Ltd was a Deptford, UK based company that specialized in the design, development and manufacture of secondary tobacco processing machinery. They very quickly turned their attention to War production particularly the handling of ammunition but went on to produce 87,700 signal pistols, mortar sights and aircraft undercarriages.

This does give us some insight into the age of the QF 3.7 in the Sandstone collection.

Sandstone's example has just been cosmetically restored and painted in the correct shade of **Olive Drab – BS381C:298,** the standard colour of armoured vehicles of the South African Defence Force from 1961 till 1975. It was built by Genelco Ltd.



The QF 3,7 towed behind a Samil 50 artillery tractor. This picture shows the previous Desert Sand colour but is also technically incorrect as the gun would not have been towed without the barrel being lowered into its cradle