

by Chris Maybury



Amelia Mary Earhart

Throughout the history of Aviation there have been several ladies who have made their mark, notably Amelia Earhart from the USA and Amy Johnson from the UK.

Amelia was notable for many long distance flights and records, particularly for being the first woman to fly the Atlantic Ocean in 1928, albeit as a co-pilot. She was tragically lost in 1935 over the Pacific Ocean, during a Round-the-World flight attempt.

Amy was particularly noted for her flights to South Africa, Australia and Japan. One of her favourite planes, a used De Havilland Gypsy Moth, named "Jason" was photographed in many obscure parts of the world, including India.

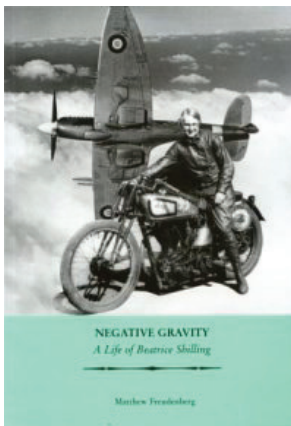


Amy Johnson

The outbreak of hostilities during late 1939 necessitated a huge increase in aircraft production and revealed a severe shortage of pilots. To avoid using combat pilots for factory to service airfield ferry duties, the Air Transport Auxiliary (ATA) was formed. Amy Johnson and many other like-minded, talented girls signed up with the ATA in 1940 and made a huge contribution to the war effort.

Sadly, in January 1941 Amy Johnson was lost when she had to bail out during bad weather over the Thames Estuary.

In parallel with the "Women with Wings" there were several ladies working in aviation behind the scenes. A little known, outside the industry is the name of Beatrice Shilling.



Beatrice Shilling

Born in Hampshire in 1909, Beatrice (Tilly) took an electrical apprenticeship in Devon. In 1929 she began a degree course in Electrical Engineering, graduated in 1932 and then went on to complete a Master of Science in Mechanical Engineering degree in 1933. She worked part time as a research assistant on supercharged single cylinder engines. Beatrice had an affinity for motorcycles and applied her skills to tuning and racing Manx Nortons at the Brooklands circuit. She achieved fame by winning a Brooklands Gold Star for lapping at over 106mph during a race.



In 1936, Beatrice Shilling joined the Royal Aircraft Establishment at Farnborough, in the North East corner of Hampshire. She was soon recognised for her talents and experience and rapidly rose to become the leading specialist in aircraft carburettors.

During the early war years, air combat conditions revealed certain shortcomings within the SU carburettors of the Rolls Royce Merlin engines. These engines were fitted to the famed Hurricane and Spitfire Fighters.

If the pilot needed to tip the nose down for a fast steep dive, the resulting negative "g" force would cause the petrol in the carburettor to surge upwards and starve the lower metering jets. This would introduce misfiring or cause a complete engine cut out. The enemy's fighters of the time had fuel injection systems impervious to the effects of gravity.

The Allied fighter pilots of the day developed the technique of rolling the aircraft onto its back to initiate the dive but this had the detrimental effect of possibly losing sight of the target and causing a few seconds of delay.

Beatrice and her team worked tirelessly to develop a solution to the problem. This needed to be a fix that could be simply retro-fitted to the aircraft in service, wherever they were deployed and not interfere with the standard set up and tuning.

The solution that emerged was the addition of a simple small brass disc, with a carefully calibrated hole. When inserted in the carburettor float chamber it had the effect to minimise fuel surge yet allow normal fuel flow according to meet the highest demands of the supercharged engines.

The modification was highly successful and saved many fighter pilots lives and significantly improved the efficiency of the aircraft under air combat conditions. The eventual arrival of reliable fuel injection systems for aircraft superseded the carburettor fuelled engines and Beatrice went on to develop such innovations as water injection systems.

The successful modification devised by Beatrice became affectionally known as "Miss Shilling's Orifice!"

Beatrice Shilling worked for the Royal Aircraft Establishment until her retirement in 1969 and passed out of our lives in 1990. In November 1990 Tilly was named as "Hampshire's People's Hero" by Hampshire residents, with a huge popular vote.