



## Duplex Drive Amphibious Tanks at Fritton Lake



During the Second World War, Fritton Lake in Norfolk was requisitioned by the 79<sup>th</sup> Armoured Division for the secret training of specially modified tanks, which would play a significant role in the D Day Landings of 6<sup>th</sup> June 1944. Sherman Tanks were adapted to make them amphibious, so that they could “swim” to shore and provide close fire support to the first wave of troops landing on the enemy beaches. These tanks were part of a series of tanks that had been adapted to do something more than just fight in the regular way, and were collectively known as “funnies”.

The Hungarian-born designer, Nicholas Straussler, invented a collapsible screen that was secured on special plates welded to the tank just above the running gear. When inflated these provided additional buoyancy, and enabled the 30 tonne tanks to displace enough water to permit them to float.



A DD Sherman Tank fitted with the tubular support rails and bracing struts. The inflatable rubber support tubes have yet to be fitted.

[Photo courtesy of Somerleyton Estate]



The screens took 15 minutes to inflate, and rose to a height of 7 feet. When the bracing struts were broken, the screen would fold like a concertina. [Photo courtesy of IWM]

When in water, the tanks looked similar to innocent canvas boats, with only about 3 feet of screen projecting above the water line. Propulsion was achieved by engaging propellers, driven from the rear idler, and these could be pivoted to control the direction of travel. The two form propulsion gave rise to the term Duplex Drive, or DD for short.

Between the spring of 1943 and the summer of 1945, over 2000 men from a number of British, Canadian and American regiments / battalions came to Fritton Lake to be trained in the operation of these tanks.

Training involved a two week intensive course mainly using Valentine DD tanks, where the troops would learn maintenance, servicing and repair, navigation techniques and emergency escape. The “school” was known as Fritton Bridging Camp, as an attempt to disguise its true use, as Water Assault Wing A – the first training camp for DD tanks.

The first part of their training involved the safe escape from a submerged tank: Wearing Davis Submarine Escape Apparatus (DSEA) men would take up their positions in a Valentine tank, located at the bottom of a concrete lined pool. The chamber was then flooded with water from an elevated water tower, and once the chamber was full, the men would escape through the hatches. The DSEA was noted to be too bulky to assist the men through the small hatches, and was late replaced with the Amphibious Tank Escape Apparatus (ATEA).

Prior to swimming with the tanks, the men had to waterproof the hull of the tank, using special tar-like pitch. To ensure this had been carried out correctly the tanks drove into a

wading pool adjacent to the lake to test for leaks. The DD tanks were then driven into the lake down specially constructed ramps made from Bailey Bridge Components to replicate a LCT (Landing Craft Tanks).

The driver required a periscope to see, but was aided by the commander who could communicate by radio and/ or steer the tank by means of a tiller. The training on the lake would last for 1-2 days, and include navigating, practicing launching procedures, and perfecting the transition of landing, breaking the struts and disengaging the propellers. Following their two weeks at Fritton, personnel were sent to other training camps around the UK, where they would launch Valentine and Sherman DDs at sea from LCTs, cross rivers and practice live firing.



DD Tank launching down the ramp of a Landing Craft (tank). Extreme care had to be taken to descend down the ramp: If the tank went down it too fast, water would flood in and sink the tank.

[Photos courtesy of Somerleyton Estate]

DD tank swimming off the Dorset Coast. These tanks were remarkably seaworthy, despite their weight, and structure. They were fitted with a bilge pump to remove excess water from the space enclosed by the screen.

The 17 tonne British Valentine tank was mainly used for training, and not until the spring of 1944 were Sherman DD tanks available for use. It was these 30 tonne American built tanks that were used on D Day: Distributed to the 5 French Beaches, each beach was assigned 2 regiments of 40 tanks. In total of 128 DD tanks launched in the early hours of 6<sup>th</sup> June: 78 successfully made it to shore. Unfortunately it was on the US controlled beaches that, due to being launched 6km off shore, 28 out of 32 DD tanks were sunk.

Despite the mixed outcomes on D Day, the Sherman DD Tank proved an invaluable weapon, and went on to be used in other military operations, such as Operation Plunder and Operation Dragoon.

At Fritton Lake an excellent series of Display Boards have been produced charting the development of the DD Tank, the training at Fritton, and their subsequent use both on D Day and during World War II. You can also read about our P47 thunderbolts that collided over the lake, and the tragic crash of a Flying Fortress from the 100<sup>th</sup> Bombardment Group.

The Estate is keen to hear from anyone who trained at Fritton, or who worked alongside these incredible specialised tanks. We would like to create an archive of personal recollections and memories for future generations to study, and appreciate the high level of commitment and bravery of those men involved.

You can read more about D Day, and these incredible tanks through the following web links:

- <http://www.d-daytanks.org.uk/exhibits/sherman-dd.html>
- <http://www.d-daytanks.org.uk/articles/developing-tank.html>
- <http://www.thinkdefence.co.uk/2009/06/d-day-during/>
- [http://www.burtonstatherheritage.org/index.php?p=1\\_8\\_The-Tank-Ramp](http://www.burtonstatherheritage.org/index.php?p=1_8_The-Tank-Ramp)
- [http://film.iwmcollections.org.uk/record.php?id=1060008292&media\\_id=372](http://film.iwmcollections.org.uk/record.php?id=1060008292&media_id=372)