

## Tube of the Month

### The WL-530

By the beginning of WWII in Europe, the British and the United States had been developing their own RADAR systems while sharing information with each other. The British had their Chain Home system that became famous due to its crucial role during the Battle of Britain. The United States developed a similar system at Fort Monmouth, NJ, that was designed to be flexible as they wanted a set that could be fixed or portable. Westinghouse got the contract to make a production version of an experimental tube and they designated it the WL-530 (VT-122). The new tube would be used in the RADAR system designated the SCR-270. The first completed 270 was delivered in early 1939. The 530 is an 8 kW, water cooled triode that could produce 75 to 100 kW pulses. These used a thoriated tungsten filament which was new to tubes of this size. A pair of 530s produced 150 kW output at 120 MHz with this set. Maximum range was about 150 miles. Four vans hauled all the components and the control shack.

The new sets were delivered to Fort Hancock, NJ, where they were tested before being deployed. The testing must have been done by some hams as they describe aiming at storage tanks off Sandy Hook and while one operator watched the screen, the other climbed the array and banged on the tuning stubs with a long wooden stick until the signal peaked.

The military was not enthusiastic about the new equipment and its deployment was delayed. In Hawaii, younger officers tried to get the system operating in spite of resistance from their commanders. The sets were eventually installed. Sets were also deployed at the Panama Canal and in the Philippines. On December 7, 1941, four of the sets had been deployed around the island of Oahu. The installation at Opana Point on the North Shore was in operation and spotted the Japanese planes heading for Pearl Harbor at a range of 130 miles. Training and experience were in short supply and the information wasn't acted upon in time to prepare an effective defense. You saw the movie.

The frequency of the system wasn't very high and better RADARS were rapidly developed, but the SCR-270 system was in use long after the War. It turns out that the widths of the props on military aircraft of the day were close to a half wave at the 106 MHz operating frequency so they made great reflectors.

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