THE MARK 14 TORPEDO

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Introduction: The Mark 14 torpedo was the United States Navy's standard submarine-launched anti-ship torpedo of World War II.

This weapon was plagued with many problems which crippled its performance early in the war. It was supplemented by the Mark 18 electric torpedo in the last two years of the war. Nonetheless, the Mark 14 played a major role in the devastating blow US Navy submarines dealt to the Japanese naval and merchant marine forces during the Pacific War.

By the end of World War II, the Mark 14 torpedo was a reliable weapon which remained in service for almost 40 years in the US Navy, and even longer with other navies, including the Royal Canadian Navy (RCN).

Development: The Mark 14 was designed in 1930 to serve in the new "fleet" submarines, replacing the Mark 10 which had been in service since World War I.

It had a relatively small warhead and was intended to explode beneath the keel where there was no armor. This required the sophisticated new Mark VI magnetic influence detonator, inspired by German magnetic mines of World War I. The Mark VI was intended to fire the warhead some distance below the target ship, creating a huge gas bubble which would cause the keel to fail catastrophically.

Problems: Due to inadequate Depression-era peacetime testing of both the torpedo and its detonator, resultant defects tended to mask each other. Much of the blame commonly attached to the Mark 14 correctly belongs to the Mark VI detonator.

These defects, in the early years of the war were exposed as torpedo after torpedo missed, prematurely exploded, or struck targets (sometimes with an audible clang) and failed to explode.

The Mark 14 torpedo and its Mark VI detonator had three major flaws.

- It tended to run about 10 feet (3.0 m) deeper than set.
- The magnetic detonator often caused premature firing.
- It tended to run "circular", failing to straighten its run once set on its prescribed gyro-angle setting, and instead, to run in a large circle, thus returning to strike the firing ship. (One US submarine - USS Tullibee - is known to have been sunk by one of its Mark 14 torpedoes circling back)

It took twenty-one months of war to isolate and fix the major defects of the Mark 14 torpedo and itsdetonator. Once remedied, sinkings of enemy ships rose noticeably. By the end of World War II the Mark 14 torpedo had become a much more reliable weapon.

Canadian Use: HMCS Grilse (SS-71) ex-USS Burrfish served in the RCN/CF

from 1961-1969. She was armed with Mark 14 torpedoes for her ten torpedo tubes.

HMCS Rainbow (SS-75) ex-USS Argonaut served with the CF from 1968-1975 and was also armed with Mark 14 torpedoes.

There is a Mark 14 torpedo on display in the LeBreton Gallery of the Canadian War Museum.

Characteristics

- Function: Anti-ship
- Powerplant: Wet-heater combustion / steam turbine with compressed air tank
- Fuel: Methanol
- Length: 20 ft 6 in (6.25 m)
- Weight: 3,280 lb (1,490 kg)
- Diameter: 21 in (530 mm)
- Range / Speed:
  - Low speed: 9,000 yards (8,200 m) at 31 knots (57 km/h)
  - High speed: 4,500 yards (4,100 m) at 46 knots (85 km/h)
- Guidance System: Gyroscope
- Warhead: 643 lb (292 kg) of Torpex
- Date Deployed (US Service): 1931
- Date Withdrawn from US service: 1975–1980

References:

1. http://en.wikipedia.org/wiki/Mark_14_torpedo
2. http://www.subvetpaul.com/USS-Burrfish-SS-312.htm
3. http://www.saoc-central.com/can_subs.html

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