C-801 [YJ-8, CSS-N-4 Sardine] (1990, Surface, Fixed Fin)

Guided Weapon

Type: Guided Weapon
Weight: 655.0 kg
Length: 4.65 m
Span: 1.18 m
Length: 4.65 m
Diameter: 0.36
Generation: None

Properties: Home On Jam (HOJ), Flight Profile - Terrain Following, Search Pattern, Bearing-Only Launch (BOL), Weapon - INS Navigation, Flight Profile - Level Cruise Flight
Targets: Surface Vessel

Sensors / EW:
- Active Radar Seeker - (ASM MR, C-801) Radar, Weapon Seeker, Active Radar, Max range: 9.3 km
- Passive Radar Seeker - (C-801) ESM, Weapon Seeker, Anti-Radiation, Max range: 18.5 km

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Weapons / Loadouts:
- C-801 [YJ-8, CSS-N-4 Sardine] - (1990, Surface, Fixed Fin) Guided Weapon. Surface Max: 46.3 km.

OVERVIEW: The C-901 (YJ-8, CSS-N-4 SARDINE) is a short-range, subsonic, solid fuel, active I-Band radar, anti-ship missile with a 165 kg SAP HE warhead.

DETAILS: After the initial boost, the missile decedned to approximately 25 meters and approches the target area using interial navigation. At an unknown distance from the projected target position, the missile activates its I-band radar. After aquiring a target, the missile decends to approximately 6 meters and enters the terminal attack phase. The terminal guidance radar with monopulse system possesses high anti-jamming capabilities.

NOTES: The C-801 entered service in approximately 1985. It is carried on missile speedboats, submarines, escort boats, and destroyers, and is used to attack destroyers or escort boats. The Han-class attack submarines are armed with C-801 cruise missiles, as are the Song-class submarines. The Modified Romeo class submarines are armed with 6 YJ-1 (Ying Ji = Eagle Strike) C-801 SSMs. The PLAN's Luda-class destroyers are armed with a ballistic trajectory ASW weapon CY-1, and 8 YJ-1 missiles. The Luhu-class destroyers are also armed with 8 YJ-1 missiles.

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SOURCES: Federation of American Scientists. "C-801." Accessed November 7, 2013. http://www.fas.org/man/dod-101/sys/missile/row/c-801.htm. ; GlobalSecurity.org - Reliable Security Information. "C-801." Accessed November 7, 2013. http://www.globalsecurity.org/military/world/china/c-801.htm. ; Jane's Weapon Systems Vol. 3: Naval, "CSS-N-4 'Sardine' (YJ-8/YJ-8A/C-801); CSS-N-8 'Saccade' (YJ-82/YJ-83/C-802/C-802A/Noor/Ghader), 25 June 2013.

C-801 YJ-1 / YJ-8 (Eagle Strike) / YJ-83 / CSS-N-4 SARDINE

The C-801 missile was developed in response to the Navy's need for small-scale missiles. Said to be derived from the French Exocet, the C-801 bears little external resemblance to this missile apart from nearly identical length and diameter, and in fact the triple control surfaces are rather similar to those found on the American Harpoon [though the Harpoon is only about 80% the size of the C-801]. The passing resemblance of the YJ-1 to the Exocet MIM4O led to the suggestion that the Chinese missile was the result of reverse engineering.

The C-801 missile is the second generation of antiship missiles developed by China. Technological improvements to the C-801/SARDINE and the C-802/ SACCADE are providing a gradual upgrade to China's current force of antiquated, first generation, CSS-N-1/SCRUBBRUSH ASCMs. The Navy's new FB-7 bomber likely will carry C-801/C-802 ASCMs.

The development of the Ying Ji (Strike Eagle) missile as a successor to the 'Styx'-based missiles such as HY-2 was extremely tortuous and marked what might be termed the beginning of a 'Western-influenced' period in China's missile design bureau. It is clear that there was a radical change in the design philosophy to a solid-propellant subsonic missile After 8 years of R&D, the C801 ship-to-ship missile passed final design tests in September 1985 directly hitting targets in all six test launches. The final design of this missile was approved in 1987.

The YJ-1 (C-801) is in a slim cylinder with ovoid nose, fixed trapezoid wings and stubby fins near the end of the body. Along the top of the body is the launch-rail fitting. A winged booster is fitted to the tail. The nose section consists of a monopulse, high-frequency (probably J-band) terminal guidance radar seeker with a 165 kg semi-armor-piercing warhead behind it. The instrument compartment, possibly containing the guidance command processor, vertical gyro, radio altimeter and its antenna, is located in front of the sustainer. It should be noted that the submarine-launched version can be used only when the boat has surfaced.

The terminal guidance radar with monopulse system possesses high anti-jamming capabilities. The high precision radio altimeter allows the missile to have minimum-altitude flight above the sea. It uses a semi-armor-piercing anti-personnel blast warhead which relies on the missile's kinetic energy to pierce the deck of a ship, penetrate into and explode in the ship's interior. During final design flight tests, one missile attacked and sank a target ship with displacement of 10,000 tons.

The C-801 is carried on missile speedboats, submarines, escort boats, and destroyers, and is used to attack destroyers or escort boats. The Han-class attack submarines are armed with C-801 cruise missiles, as are the Song-class submarines. The Modified Romeo class submarines are armed with 6 YJ-1 (Ying Ji = Eagle Strike) C-801 SSMs. The PLAN's Luda-class destroyers are armed with a ballistic trajectory ASW weapon CY-1, and 8 YJ-1 missiles. The Luhu-class destroyers are also armed with 8 YJ-1 missiles.

This multipurpose missile can with modification be loaded on various ships, aircraft and motor vehicles. On the basis of the C801 ship-to-ship missile and in accordance with user demands, the product series with modified design includes:
? C801A general purpose antiship missile uses folded wings, semi-automatic testing, ballistic breakable container launching, and other new technologies to increase the number of missiles carried by ships.
?The CY- 1 anti-submarine missile consists of the rear half of the YJ- 1 with a lightweight torpedo, probably the

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Eurotorp/Whitehead A244 in the forward part. The missile appears to be fired from fixed launcher-containers and probably operates in the same way as Milas and Asroc.
? C802 shore-to-ship missile which employs a small turbojet engine in place of the original solid rocket engine, providing a three-fold increase in range to 120 km.

Iran may have imported as many as 100 C-801s and eight launchers in 1987-88, and by 1994 it was claimed that Iran had about 200 C-801 missiles as well as the ability to produce the C-801 indigenously [under the designation "Tondar"]. Other reports in 1996 suggest that China was assisting Iran with a new antiship cruise missile -- the "Karus" -- which believed to be based on the C-801 and/or C-802. In June 1997 Iran tested two Chinese-built C-801 air-launched cruise missiles from an F-4 fighter.

The Luhu-class Type 113 destroyers represented a significant improved in weapons and electronic systems. The primary surface-to-surface weapons are 8 YJ-8/YJ-82 sea-skimming SSMs. Luhai Type 167 Shenzhen weapon systems are not much different from those onboard Luhu, including 16 YJ-82/YJ-83 SSM. The improved Jiangwei II FFG (Type 053H3) has upgraded radar and fire control systems, including datalink as well as a new fire-control radar. More powerful weapon systems include two quadruple YJ-82/83 SSM systems (compared to the original two triple). Some Jiangwei I FFGs may carry the YJ-82 as well). The development of the YJ-82 ASCM for the SONG submarines eventually will give the Navy a submerged-launch cruise missile.

The submarine-launched "Yingji no 8, model 3" anti-submarine missile officially passed the first-phase system acceptance tests early in 1997. Taiwan sources claim that China made the Yingji no. 8 by modifying the French "Exocet" missile. The hit probability is expected to be higher than the missiles currently used by Chinese forces.

China fired a YJ-83 anti-ship cruise missile from a JH-7 fighter-bomber in November 2002 over Bohai Bay, off northern China. The test of the new cruise missile demonstrated twice the range US intelligence agencies initially estimated. The estimated range of the YJ-83 had been assessed to be about 75 miles. The new missile test showed that its range is about 155 miles [250 km]. The YJ-83 is believed to be a derivative of the C-801 anti-ship cruise missile but can travel at supersonic speeds, making it very difficult for ships to stop. The YJ-83, sometimes called the C-803, also has the capability to receive target information in flight, and will probably be outfitted on the upgraded JH-7a fighter-bomber.

The precise application of the YJ-8 designation remains somewhat obscure, as it is used with reference to both C-801 and C-802 missiles, and may be the overall designator for the weapon system that fires both types of missiles. Thus, while some sources reference a YJ-8-2 and YJ-8-3 missiles, other sources reference a YJ-82 and YJ-83 missiles.