

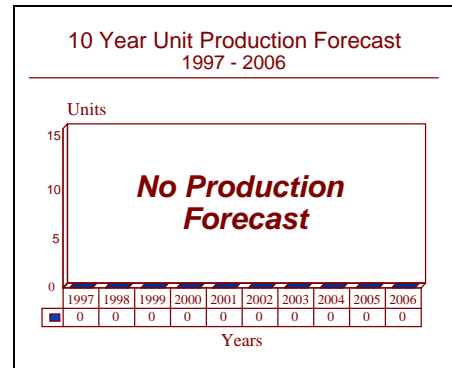
ARCHIVED REPORT

For data and forecasts on current programs please visit
www.forecastinternational.com or call +1 203.426.0800

CEIEC-921A - Archived 11/98

Outlook

- Aging, technically obsolete system
- Replaced by license-built French and Israeli kits
- Out of production
- This report will be dropped next year, 1998



Orientation

Description. Naval ESM receiver to warn submarines of hostile radar emissions.

Sponsor

China National Electronics Import and Export Corporation
Third Export Division
41 Fucheng Road
Beijing
China
Tel: +861 810939
Telex: 222716

Contractors

China National Electronics Import & Export Corporation
49 Fuxing Road
Beijing
China
Tel: +861 810910
Telex: 22475

Licensee. The system is reportedly being built under license in North Korea.

Status. Production is believed to have ended.

Total Produced. Industry estimates suggest that 110 units had been produced through 1996.

Application. The CEIEC-921A is a submarine-mounted ESM receiver intended to alert the platform to hostile radar emissions and provide approximate locations of those emitters.

Price Range. As with all Chinese military equipment, the prices charged for these radars will vary dramatically in response to political considerations. A rule of thumb for putting a notional figure for these below-market Friendship Prices is to estimate that the price of the Chinese system is about 20-33 percent of a comparable Western system's. This suggests the unit cost of the CEIEC-921A would be about US\$200,000.

Technical Data

Specifications

Frequency range: E- to J-bands (2-18 GHz)
Bearing accuracy: 30 degrees

Dimensions

	Metric	US
<i>Antenna unit dimensions:</i>	56 x 61.5 cm	22.2 x 24.4 in
<i>Receiver/display unit:</i>	45 x 46.8 x 12.4 cm	18 x 18.5 x 5 in
<i>Distribution unit:</i>	14.5 x 21.4 x 29.1 cm	5.7 x 8.5 x 11.5 in
<i>Weight:</i>	126 kg	277 lb

Design Features. The CEIEC-921A consists of three units: an antenna, a receiver and display unit, and a distribution unit. The antenna is a relatively heavy and bulky mast-mounted cylinder bearing a distinct resemblance to a steam locomotive boiler. This compares unfavorably with the much smaller and more stream-

lined fiberglass units used in Western systems. The transistorized display unit has facilities for a rough visual display of intercepted signals and an audio-warning system. Overall, the equipment appearance confirms it to be a derivative of a 1950s' vintage system.

Variants/Upgrades

The CEIEC-921A uses obsolete technology, and the fundamental limits of the system make it unlikely to be further upgraded. It is being replaced by a new submarine ESM receiver probably using French DR-2000 technology.

The CEIEC-921A is a derivative of an older Russian system, Nakat (NATO codename Stop Light A). It is probable that CEIEC-921 was Nakat built in China.

Program Review

Background. The CEIEC-921A was derived from the Soviet Nakat (Stop Light A) system installed on Project 613 (Whiskey) submarines delivered in the late 1950s. Nakat has a close relationship with the Bizan 4A (NATO codename Watch Dog) ESM receiver, which also dates from that era. During the 1970s Chinese research institutes made a series of product improvements to the Nakat and Bizan 4A after reverse-engineering them. Those changes included a conversion to transistor technology, which resulted in the CEIEC-921A system.

The CEIEC-921A first appeared on Chinese-built Project 633 (NATO codename Romeo) class submarines during the early 1970s. These Chinese-built submarines are designated the Project 033 by the Chinese navy and Project ES3B for export. In Soviet service, Bizan 4A has appeared extensively on surface units, particularly Project 50 (NATO codename Riga) class frigates. The Chinese Jianghu frigate design is a distant descendant of the World War II Japanese Uhuru class destroyer escort but is comparable in size and performance to the Riga. The RW-23-1 jammer listed as EW equipment for the Jianghus is strikingly similar to Bizan 4A. This

suggests that RW-23-1 and CEIEC-921A are, like Bizan 4A and Nakat, first cousins.

Although no further Chinese Romeos are being built for the Chinese navy, the type has been exported to North Korea and Egypt, and Chinese efforts to export Romeo boats continue. In addition, the North Korean navy has started to build its own Romeo boats, and these probably carry either an imported Type 921A or a North Korean copy thereof.

The Chinese navy has started to build nuclear-powered attack boats, the Han class, the first of these appearing during the early 1980s. At that time they still carried the CEIEC-921A. These boats are believed to have subsequently been refitted with DR-2000 systems imported from France. The Chinese navy has also started building Project ES5B (NATO codename Ming class) submarines. These are essentially Romeos fitted with Eledone sonars, Calypso search radars and the DR-2000 ESM system. Informed sources suggest that the Ming class boats are capable of firing the SM-39 submarine-launched Exocet. CEIEC-921A does not have the

angular resolution required for this weapon — in point of fact nor has DR-2000U.

When the most recent Han class SSN (Number 405) was first sighted in December 1992, it was revealed to have significant modifications from the earlier members of the class. In particular the hull has been stretched by approximately 8 meters, to accommodate a battery of 12 tubes for C-801 Ying-ji anti-ship missiles. A digitally-enlarged and enhanced photograph of the mast array revealed that this submarine was equipped with the Israeli-designed Timnex 4CH(V)2 ESM equipment. This equipment was designed by the Israelis specifically to provide over-the-horizon targeting (OTHT) facilities for submarine-launched anti-ship missiles. Subsequent photographs of Han class submarines numbers 403 and 404 revealed the same equipment.

In mid-1994, the Russian Rubin Design Bureau concluded an agreement to sell two Project 877 and two Project 636 class submarines to the Chinese and to transfer the technology necessary for the construction of additional submarines of this class to Chinese yards. Later contracts increased the number of submarines purchased to ten with the production license covering a further twelve. The license is reported to include the appropriate sub-systems, providing the Chinese with a third potential replacement for the CEIEC-921A. Also seen in mid-1994 was the Song class, a new Chinese anti-ship missile armed SSK. The missile armament of this ship means that it will have to carry a more precise form of ESM than that offered by the CEIEC-921A. However, the first of class was seen to be carrying the distinctive CEIEC-921A antenna.

Funding

The CEIEC-921A was developed using Chinese government funding.

Recent Contracts

No recent contracts have been identified for this system

Timetable

1982	First Egyptian Chinese Romeo submarines delivered
	Chinese Han class submarines delivered
1984	Last Romeo submarines delivered to Chinese navy
	Second pair Egyptian Chinese Romeo delivered
1986	Chinese Xia class SSBNs delivered
1989	Chinese Ming class SSK revealed
1991	Details of Ming class SSK revealed
1995	Chinese Song class SSG revealed

Worldwide Distribution

China (2 on Han SSN, 1 on Song class SSK, 72 on Romeo SSK)

North Korea (18 on Romeo SSK, 2 lost in accidents or sunk)

Forecast Rationale

The CEIEC-921 now has three replacement systems available for production in China: the French DR-2000U, the Israeli Timnex 4CH(V)2, and the Russian Zhaliv-P. Evidence points to the use of one of these as the system for China's new submarine construction. The CEIEC-921A is fundamentally outmoded

and unsuited for deployment in anything but the lowest-risk environments.

The CEIEC-921A system has many drawbacks related to its outdated technology. Its very poor angular resolution does not permit it to be used for over-the-horizon targeting of anti-ship missiles. The Chinese

navy is introducing two types of nuclear-powered submarines, the ballistic missile-equipped Xia class and the hunter-killer Han class. Neither seems to have been particularly successful, although further construction of both classes is continuing at a very slow rate. Both utilized the CEIEC-921A, but the system was replaced by license-built DR-2000 systems in both classes.

Recently three Han class submarines have been installed with another Western-designed ESM system, the Timex 4CH(V)2. This is specifically associated with submarine-launched anti-ship missiles and probably indicates a pattern where submarines with anti-ship missile capability have the Israeli system, torpedo-attack submarines receive DR-2000U and both get CEIEC-921A as an interim if the specified set is not available.

The major Chinese program will be a replacement for the existing force of Romeo class submarines. These

slow and poorly equipped ships are in need of either replacement or major upgrading. One new class of diesel-electric hunter-killers, the *Ming* class, combines the existing Romeo hull with French-supplied sonars, radars, electronic warfare equipment, and combat systems. Some reports credit these boats with anti-ship missiles. This is not likely, however, due to the DR-2000U's inadequate targeting capabilities for such weapons. Confirmed Chinese platforms for such missiles have Israeli ESM equipment.

This year's forecast reflects the discontinuation of CEIEC-921A production for China's needs, with future submarines carrying French, Israeli or Russian-designed ESM. The lack of available information about the system, as well as its outdated technology suggest that the CEIEC-921A is no longer in production.

Ten-Year Outlook

No production forecast. THIS REPORT TO BE DROPPED NEXT YEAR, 1998.

* * *