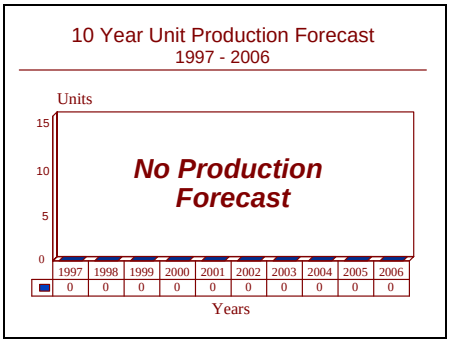
Rattler - Archived 4/98

Outlook

- In production and operational service
- No future sales or production forecast



Orientation

Description. Tactical battlefield jamming system designed to provide a standoff jamming capability in support of land, sea and air operations.

Sponsor
Israeli Ministry of Defense
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Hakirya
IS-67659 Tel Aviv
Israel
Tel: +972 3 212 21920

Contractors
Rafael Armament Development Authority (RAMDA)
PO Box 2082
IS-31021 Haifa
Israel
Tel: +972 4 706965
Telex: 472508

Licensee. No production licenses are known to have been granted.

Status. Production and service.

Total Produced. It is believed that between 25 and 30 systems have been deployed on warships of the Israeli navy. Many of these have now been replaced by later systems. The system is understood to be in service with the Israeli army and air force also, but there is no indication of the scale of such issue. A total of 16 systems have been supplied to export customers.

Application. Rattler can be deployed in helicopters or fixed-wing aircraft, on vehicles, on board ship or on land. RAJ-101 is the version mounted on the M-113 in Israeli army service.

Price Range. Based on the known costs of comparable US systems, the unit cost of a Rattler system is estimated at US$250,000.

Technical Data

Characteristics	Metric	US
Range:	30-40 km	18-25 miles
Weight HF Amplifier:	38 kg	84 lb
Weight LP Source:	28 kg	52 lb
Weight control unit:	2 kg	5 lb
Weight power supply:	5.5 kg	12 lb
Frequency range:	2-18 GHz	
Effective radiated power:	Greater than 400 W	
Jamming modes:	Spot/barrage	

Design Features. Rattler is a modular system which can operate within a larger ECM system or under local control and has a dual stand-off or stand-in capability. It can detect, analyze and engage three hostile radar threats simultaneously. The system is composed of four units, a low-power microwave source, a high-output wideband power amplifier, an integrated power supply and local control unit. Jamming can be achieved by spot barrage radiating power in a high jam/signal ratio.

Operational Characteristics. Up to 16 Rattler systems can be deployed with one 488 data bus. The application of computer-controlled time-sharing technology thus permits the ESM/ECM control suite to jam up to 48 radar frequencies simultaneously. The individual unit can be up to 200 meters from the central control point.

The Rattler antennas are mounted within two or three large, spherical antenna housings. On warship installations these are mounted on either side of the foremast. Vehicle installations use three such housings in a line across the top of the platform. It is believed that each antenna group has a 120-degree coverage arc. This implies that the vehicle installation has all-around coverage but the naval installations have substantial blind arcs fore and aft.

Variants/Upgrades

Rattler is a high power-output radar jammer targeted against search, surveillance and tracking radars. It can be deployed as a ground-based system and also in naval or airborne roles.

RAJ-101. This is a derivative ground-radar jamming system tasked with analyzing and jamming enemy battlefield radars.

SEWS. In naval service the Rattler jammer is usually associated with the SEWS (Shipboard Electronic Warfare System) ESM equipment.

Program Review

Background. Rattler and RAJ-101 were first announced to the public during 1986/87, by which time they had been procured by all branches of the Israeli defense force. Initially, they were thought to be separate systems, and the derivative relationship between Rattler and RAJ-101 only became clear in the late 1980s. Schedules indicate that development had begun during 1979/80, and there is strong evidence to suggest that the system has many similarities to the Elettronica ELT-828. There is strong evidence that the system was extensively used during the operations conducted by the Israeli Army in Lebanon during the early and mid-80s and was involved in the "Massacre of the SAMs" in 1983.

The Rattler system has been produced by RAMDA to meet IDF requirements. Reports indicate that the RAJ-101 is in service with the Israeli Army but current procurement appears restricted to spares and support equipment and services.

Evidence is growing that the Rattler system, like a number of other Israeli naval and airborne electronic warfare systems, has its origins in Italian technology obtained from Elettronica during the mid 1970s. Photographs of the antenna housings reveal these to be identical to the Elettronica ELT-828 antennas, usually associated with the ELT-521 jammers. These are usually found as part of the Newton and Nettuno integrated jamming systems. Newton Alpha is produced under license in Israel as the MN-53 as equipment for SAAR FAC-M. This suggests that Rattler is, in fact, derived from the ELT-521. Additional support for this is given by the fact that the Italian system, like Rattler, is also produced in a land-based version. While it is likely that significant changes have been made to the Italian ancestor, these do not alter the basic conceptual age of the system.

Once prominently featured in Israeli presentations on EW capability, Rattler has vanished from active promotion since around 1993. In its place, a series of new systems has been promoted, all based on locally developed electronics technology. Presumably, these were developed as a result of combat experience gained by the Israelis and now form the basis of their export presentations. Rattler itself seems to be in the "supported but not promoted" category and further developments of this system seem unlikely. There is a complete absence of any additional information on program activity, adding strength to this supposition.

Funding

Development was funded by the Israeli government.

Recent Contracts

No contractual information has been made publicly available.

Timetable

1979	Development started
1983	First known combat use
1992	Singaporean FAC-M retrofitted with Rattler

Worldwide Distribution

The following worldwide distribution list is obtained from the **Forecast International World Naval Electronic Warfare Database.**

Chile (2 on SAAR-3 FAC-M, 2 on SAAR-4 FAC-M)
Malaysia (4 on Spica-M FAC-M)
South Africa (3 on SAAR-4 FAC-M)
Singapore (5 on Sea Dragon FAC-M)

Forecast Rationale

Inspection of photographs of Israeli warships shows that Rattler has been replaced in Israeli navy service by more recent systems. This is supported by the steady appearance of new-generation Israeli equipment on the international market. Initially, these new integrated EW systems were very highly regarded. User feedback from navies acquiring the new-generation Israeli equipment was effusively complimentary as to the capabilities of the systems. More recently, praise for the systems has become more muted as operational experience with them has accumulated. This is not an atypical series of events.

There are large numbers of similar systems available from US, British, Dutch, French and Italian manufacturers. The growing trend is for the sale of naval electronics to take place as integrated systems encompassing the action information system, radars, passive sensors and jamming facilities. This gives a considerable advantage to countries able to offer a full range of systems and limits the attractiveness of Israel as a supplier at this time.

The Israeli army's ground-based derivative of Rattler, RAJ 101, forms a key element in the Israeli Defense Forces' ECM effort. Denying the use of battlefield radar to an opponent is particularly valuable in the Middle East, where the nature of the terrain and the need to reduce casualties to a minimum places great stress on the use of radar surveillance systems. Ground radar forms a large portion of the Syrian army's battlefield intelligence gathering operations, and the IDF has, as a result, a firm commitment to ground- based ECM. The implication is that the replacement of Rattler units operated by the Israeli army has paralleled that conducted by the Israeli navy. There is no evidence that the advertised airborne derivatives of the system have ever been placed in service.

There is no indication of any activity in this program and a variety of new systems have been launched to replace Rattler on the market. In the absence of such data, no meaningful forecast can be made. However, the balance of probability is that production has now ended. We will be maintaining this report in the short term, but if the lack of meaningful activity continues, we will be deleting it in a future supplement.

Ten-Year Outlook

No production is forecast.

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