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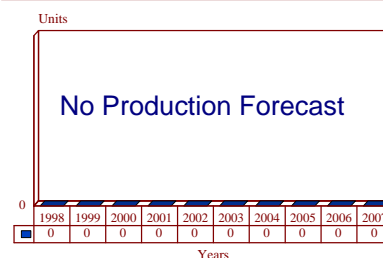
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SHORAR - Archived 5/99

Outlook

- Program not expected to be restarted
- Only 36 units sold to Canada in 1993
- THIS REPORT WILL BE DROPPED IN 1999

10 Year Unit Production Forecast
1998-2007



Orientation

Description. The SHORAR (SHOrt Range Acquisition Radar) is a fully coherent I/J band pulse-Doppler radar tasked with search, acquisition and target designation of airborne targets flying at medium, low and very low altitudes.

Sponsor

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Contractors

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Licensee. A production license had been awarded to Martin-Marietta (now Lockheed Martin) for the now defunct US Army ADATS system. It is believed that the license has been allowed to lapse.

Status. Believed to still be in service, but out of production.

Total Produced. A total of 36 systems were procured by the Canadian Army in 1993.

Application. SHORAR was designed to be used as part of a mobile system for a wide range of AA vehicle types. Additionally, a trailer-mounted version, designated Pagoda, is available for fixed locations.

Price Range. No firm information is available on per-unit cost for a SHORAR system.

Technical Data

Characteristics	<u>Metric</u>	<u>US</u>
Range discrimination	100 m	110 yd
Maximum range	17-25 km	10-15 mi
Total weight	580 kg	1276 lb
Azimuth accuracy	0.5 deg	
Operating frequency	I/J-band	X-band
Scan rate	60 rpm	

Design Features. SHORAR is a fully coherent I/J band pulse-Doppler system for high clutter rejection, very low target detection and high azimuth angular discrimination. Doppler filtering and data processing are performed by a digital computer system for flexibility in different scenarios. Track-while-scan and automatic threat evaluation are incorporated, as are multiple target handling and a search-on-move capability. In the autonomous version, SHORAR incorporates a command and control facility within the radar vehicle, together with a Target Data Distribution and Display System (TD/DDS). This allows a timely alert to be given to friendly forces under air attack, a prompt identification of enemy aircraft to be made and an immediate target acquisition followed by an efficient engagement with the most suitable weapon. The TD/DDS system enables SHORAR to perform a Command and Control (C2) function for associated AA weapons in addition to track-while-scan. SHORAR has been proposed for deployment with a number of anti-aircraft gun systems manufactured by Oerlikon-Buhrle such as the GDF-D03 Escorter AA system.

Signal filtering and processing provide adequate clutter suppression, advanced ECCM circuitry is incorporated. The radar data handling system can handle up to six targets simultaneously, providing information about their position (in relation to an x/y/z system of Cartesian coordinates), their distance and their friend/foe identification (IFF). A more sophisticated device, able to handle up to 10 targets simultaneously, is offered as an option. The targets are presented on the monochromatic CRT display of the commander's console, and the engagement is initiated by a small joystick to the right of the screen.

Operational Characteristics. The SHORAR radar was developed to fulfill a number of requirements, either as an autonomous radar aboard a vehicle, a separate trailer-mounted unit (Pagoda) or an element within an air defense system. The equipment is designed for short-range acquisition of targets down to and including ground level. Particular emphasis has been placed on the ability to detect hovering low-level helicopters.

Variants/Upgrades

ADATS. The US Army ADATS radar was a version of SHORAR that retained a high level of commonality. The pulse-Doppler surveillance and acquisition ADATS radar had a Traveling Wave Tube (TWT) emitter and was designed on modular architecture so that future improvements could be more easily incorporated into the system. Requirements were to be the capability to detect both

moving and stationary targets on the ground or in the air. The maximum detection range was to be 24 km, with an effective ceiling of 6,000 m.

Pagoda. Pagoda is a trailer-mounted version of the SHORAR radar with a shelter for command and communication.

Program Review

Background. SHORAR was developed from, and is broadly similar to, the radar used in the Skyguard system. Where the earlier system uses two radars, one for search and one for acquisition, SHORAR incorporates both functions into the same antenna. The US Army ADATS program has its roots in the 1979 agreement signed between Oerlikon and Martin Marietta. Contraves, as a

wholly owned subsidiary of Oerlikon-Buhrle, was contracted to develop the radar.

The SHORAR vehicle system was to be the primary sensor for the US Army's ADATS program. While successful tests occurred in the early 1980's the US Army decided to suspend, and finally cease funding, the ADATS program.

When the US Army ceased the promotion of ADATS, the Canadian Army was left holding the bag on a contract for 36 systems. While those systems were delivered in 1992, there have been no known further orders since that time.

Funding

The SHORAR and Pagoda systems were developed with private funds.

Recent Contracts

No known contracts have been awarded since 1990-1991.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1979	Oerlikon/Martin Marietta ADATS development agreement
	1983	Development of SHORAR system completed
	1984	SHORAR entered series production
Apr	1986	ADATS won Canadian LLADS competition
Sep	1986	Pagoda unveiled at Farnborough Air Show
Feb	1988	ADATS selected by US
	1991	Canadian ADATS IOC
	1992	US ADATS program canceled
	1992	Delivery of 36 systems to Canada

Worldwide Distribution

Canada 36 systems

Forecast Rationale

The US cancellation of ADATS in 1992 left the production total at 36 Canadian systems, delivered in 1993, not including prototype and T&E systems. Canada attempted to back out of this order in March 1992 since the system was originally intended to protect Canadian bases in Germany that were being recalled from the area. The Canadians then rethought the cancellation, deter-

mining that the system could be of use protecting Canadian expeditionary forces.

The program has been out of production since the 1994-1995 time frame, with no known contracts awarded since the Canadian procurement. The program has no possibility for revival in any form.

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