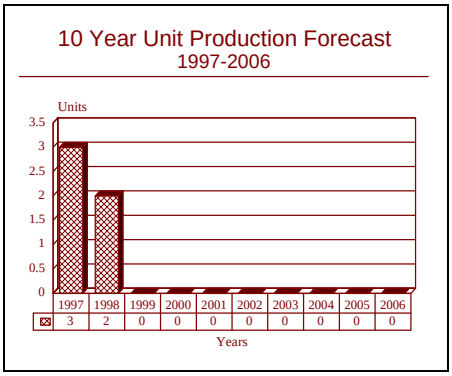
Rampart- Archived 1/98

Outlook

- Airfield decoy defense system
- Low-tech, economical solution against low altitude sorties
- Little market success; thus likely to be phased out
- Very little information of current users available



Orientation

Description. A ground-based passive air defense system combining chaff and infrared decoys, barrage balloons and smoke generators, for the protection against low-level air attacks.

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Licensee. No production licenses have been granted.

Status. In production and service.

Total Produced. Officially, two customers have had Rampart systems installed at their airfields. The real number of users is believed to be substantially higher.

Application. Rampart is intended to defend strategic targets against low-flying attackers, by forcing them to take evasive action and preventing their visual, infrared, radar, or laser target acquisition.

Price Range. As a modular system Rampart defies easy cost analysis. However, examination of contract values suggests that an average airfield defense system would cost around US$225,000 (1998 dollars adjusted for inflation).

Technical Data

Characteristics	**Metric**	**US**
Transmitter range:	20 km	10.8 nm
Rocket range:	800-1,800 m	880-2,000 yards
Rocket payloads:	Chaff/IR flares	
Skynet balloon alt.:	1,000 m/4 minutes	3,300 ft/4 minutes
Skysnare balloon alt.:	300 m/2 minutes	1,000 ft/2 minutes
Smoke duration:	60-300 s	

Design Features. Rampart comprises batteries of smoke, chaff, and infrared decoy launchers and the Skysnare and Skynet barrage balloon launchers. The system provides protection to fixed positions against missiles, laser/TV, IR and radar-guided, and manned aircraft. The system consists of a number of independent mobile/portable launchers that are operated from a central console via remote radio control.

The more advanced versions of Rampart, the Mark II NATO type, have also been fitted with ECCM to prevent jamming of command impulses. IR screening smoke is also available as an option.

Operational Characteristics. The system provides expendable cost-effective protection for key points of defense. It also offers final counter-measures options against enemy perpetrators leaking through the defense's hard-kill systems.

From the tactical point of view, the system can be described as offering three different levels of insurance against air attack. In the most obvious level, it is first a complement to existing electronic countermeasures and gun or missile air defense systems. Beyond that, the system provides the option of passive countermeasures for those key points in the overall defense picture which perhaps would otherwise not receive full defensive effort. Finally, it offers an affordable countermeasures capability to nations that would otherwise be unable to set up ECM or sophisticated active defense measures.

Variants/Upgrades

Rampart Mk.2 was introduced to meet NATO requirements on blocking command impulse jamming. It features a new IR screening smoke back-up facility to the existing array of decoys and is also fully mobile. It is supplemented by a fully automatic Large Area Smoke Screening System which can blanket an area for up to 90 minutes.

The latest upgrade to the basic Rampart system has been the inclusion of a SAM simulator which mimics the visual characteristics of a surface-to-air missile. This is intended to force an attacking aircraft to take evasive action, thus disrupting its sortie and possibly forcing it into the engagement envelopes of defensive SAMs and antiaircraft guns. Update kits are available to purchasers of earlier systems.

Program Review

Background. Rampart was first officially announced in 1983, with production orders following from an unidentified Middle Eastern customer, possibly Jordan. Another order worth approximately UK£2 million came in 1986 or early 1987 from an unidentified Air Force in the Far East, to use the system for airfield protection.

Apart from these two confirmed orders, no other clients have been publicly revealed, but the system is said to be in full production. It was the subject of an order for an unspecified nation, worth about UK£4 million, probably around 1988.

The Wallop Group claims that a number of other customers have ordered the system. In addition, the system has been extensively demonstrated in both the UK and Europe.

Funding

Rampart was originally developed using company funds, and further upgrades continue to be so funded.

Recent Contracts

Contractor	Award ($ millions)	Date/Description
Wallop Group		1985 - Middle Eastern client for the protection of five or six sites
Wallop Group	3.6	1987 - Far Eastern client
Wallop Group	7.2	1988 - Confidential
Wallop Group	0.5	1988 - Confidential spares/support

Timetable

	1983	Rampart first announced
	1986	Skynet balloons introduced
Jun	1987	Order from Far Eastern Air Force
Mar	1988	Repeat order from unidentified customer — SAM simulator added

Worldwide Distribution

Middle and Far East: Unidentified customers are reported to exist for the product in those regions.

UK: The UK MoD is discussing purchase of the system and has already bought chaff, IR rockets, and smoke systems which form part of the total concept.

Forecast Rationale

Airfields and similar strategically important targets are, in general terms, protected from air attack by a combination of gun and missile defenses and target hardening. The deployment of surface-to-air missile batteries and radar-directed anti-aircraft guns around such targets increases the risk for the attacking aircraft, and the effectiveness of a single run is further degraded by the hardening of all key defense points within the target.

The bomb-proof shelters installed on most NATO airfields, for instance, are known to provide full protection against direct hits from 500 kilogram bombs, and many Third World air forces, such as Iraq, provided even greater levels of protection. These, however, have proved still inadequate during the heaviest bombings. While the runways cannot be protected in this manner, the engineering equipment used to repair them can enable quick fix patching of bomb damage within a few minutes from the end of the attack.

Rampart provides a valuable third dimension to this defense system which synergistically increases the effectiveness of the other two components in addition to its own properties. Skillful positioning of the Rampart batteries, and in particular of the barrage balloon components, can be used to force the attacking aircraft to fly into sections of air space that are covered by antiaircraft guns using pre-calculated firing solutions. These flak traps can achieve very high levels of efficiency without needing radar fire control. Rampart can also enhance the effectiveness of SAM systems by forcing the attacking aircraft up into their firing envelope. This can be done either by the physical obstacles and smoke or by using chaff-clouds to deceive terrain-following radars into ordering a pull-up.

Rampart also assists in the protection of airfields by degrading the attacker's target acquisition capability. The presence of hard-kill anti-aircraft systems forces the attacker to make its run at high speed, giving only a few seconds for target acquisition. The presence of dense clouds of laser and IR-opaque smoke drifting across the targets, flares going off all over the place, and balloon cables getting in the way is guaranteed to magnify the difficulty of the enemy pilot's task. Given the levels of stress and the violent evasive actions being taken, it is improbable that any attack will be more than minimally effective.

The Rampart system, then, represents a highly cost-effective means of enhancing the defenses of a vital target against air attack. As a self-contained system powered by

solar cells or batteries, its life cycle cost should be equally low. Finally, unlike anti-aircraft guns or missiles, its use requires very little training and maintenance. As a side benefit, the munitions used in its operations are sufficiently low-cost to permit their use in training friendly pilots to cope with the environment presented by the system.

This simple yet effective system has not met with greater success in the market, however. A possible explanation is that, while it is effective against the low-altitude tactics favored by the UK Royal Air Force, it has substantially less value against medium-level attacks using laser-guided penetration bombs on hardened shelters. At any rate, the added protection provided by Rampart could be worth its low acquisition cost, especially for operators in environments where low-level attacks are an expected enemy tactic.

Wallop has been exceptionally cautious in releasing information on the users of Rampart, although Jordan and Thailand have both been suggested as users, with other possibilities including the UAE, Bahrain, Saudi Arabia, Malaysia, and Singapore. The discretion with which Wallop treats its sales and the nature of the system makes it difficult to find a basis on which to assess a unit production forecast.

Discussions with Wallop have disclosed that, contrary to all reasonable expectations, sales of Rampart have fallen far short of hopes. The forecast relates to final quantities of munitions sets delivered to support existing systems. In view of the apparent lack of success of the system, this report will be discontinued in a future supplement.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

			High Confidence Level										Good Confidence Level										Speculative		
Designation	Application	thru 96	97	98	99	00	01	02	03	04	05	06	97	98	99	00	01	02	03	04	05	06	Total 97-06
RAMPART	AIRFIELD DEFENSE (UNSPECIFIED)	64	3	2	0	0	0	0	0	0	0	0											5