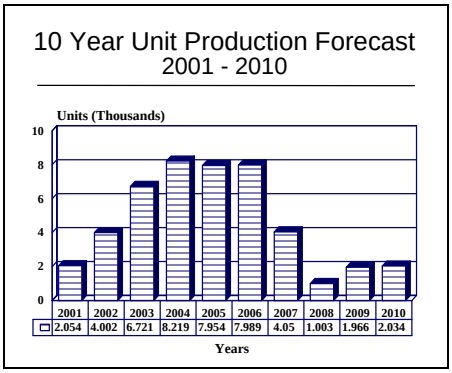
Aimed Controlled Effect Anti-Tank Mine – Archived 12/2002

Outlook

- Low-rate serial production under way
- Total of 35,000 units forecast to be procured by Germany and the United Kingdom
- France no longer funding procurement
- Other export forecast
- No modernization or retrofit forecast



Orientation

Description. An anti-tank munition (an off-route anti-tank mine).

Sponsor. The Aimed Controlled Effect Anti-Tank Mine program is a tri-national program sponsored by the Ministries of Defense of France, Germany and the United Kingdom. The actual contracting action is done on the behalf of the three-member nations by the Direction des Armement Terrestres, a component of the French Ministry of Defense. France withdrew from the procurement portion of the program in early 1998.

Contractors. The Aimed Controlled Effect Anti-Tank Mine is developed and manufactured by a consortium consisting of Giat Industries of France, Dynamit Nobel and Honeywell Regelsysteme of Germany, and Insys (formerly known as Hunting Engineering) of the United Kingdom. The Société d'Etudes, de Réalisations & d'Applications Techniques, a firm jointly held by Giat Industries and Aerospatiale, is acting as a subcontractor to Giat Industries on this program. The other sub-contractors on the Aimed Controlled Effect Anti-Tank Mine are unidentified.

Licensees. None

Status. In May 1991, the competitive development process was completed with the selection of one team's proposal. France withdrew from the procurement program in early 1998; subsequent negotiations are ongoing regarding the workshare in the program and how it is to be run with Giat Industries as the prime contractor but no French procurement. The Aimed Controlled Effect Anti-Tank Mine is now in low-rate serial production.

Total Produced. 711 complete developmental prototypes and production units of the Aimed Controlled Effect Anti-Tank Mine have been manufactured. This includes pre-prototype weapons, several of which are for the competitive development program.

Application. The Aimed Controlled Effect Anti-Tank Mine is a munition (an off-route mine) for the destruction of tanks and other armored vehicles. The weapon will be used to cover gaps in other anti-tank defenses, to block roadways, and channel hostile armored forces in desired directions.

Price Range. Based on a buy of 1,000 units, the unit price of the Aimed Controlled Effect Anti-Tank Mine is projected at $8,200 in equivalent 2001 United States dollars.

Technical Data

Dimensions. As of late 2001, little detailed technical data related to the Aimed Controlled Effect Anti-Tank Mine was released. All that is currently known is that is has a weight of 14 kilograms (30.8 pounds) and range parameters of between 1 and 100 meters (3.28 to 328 feet). The weapon is roughly the length of a LAW-80; it is mounted on a tripod with the sensor package fixed on top. The munition is packed in an environmentally protected launch tube which is discarded after use.

Performance. The test data released to date indicate that at a 90 meter (295.27 foot) range, the Aimed Controlled Effect Anti-Tank Mine has a probability of hit of 1.0. To date, the released test results indicate an X-axis dispersion of 119 centimeters (46.85 inches) and a Y axis dispersion of 19 centimeters (7.48 inches) at the 100 meter (328.1 foot) range.

Control and Guidance. The Aimed Controlled Effect Anti-Tank Mine uses infrared and acoustic sensors plus a ranging device to detect and launch the munition. A "full-target discrimination" capability, the ability to distinguish between high-value tank and low-value light wheeled and tracked vehicles, is incorporated into the system.

Propulsion. The Aimed Controlled Effect Anti-Tank Mine munition uses a high-impulse solid-fuel rocket motor. This motor may be based on the technology of the one used in the LAW-80 man-portable anti-armor weapon.

Warhead. The Aimed Controlled Effect Anti-Tank Mine uses a conventional tandem High Explosive Anti-Tank warhead. This tandem warhead is advanced in that it employs the latest technology to realize greater effectiveness against the newest armor advancements, including explosive reactive armor.

Variants/Upgrades

Variants. There are no variants of the Aimed Controlled Effect Anti-Tank Mine exist at this time, and none are anticipated.

Modernization and Retrofit Overview. As the Aimed Controlled Effect Anti-Tank Mine has yet to enter full-scale serial production, this is not applicable at this time.

Program Review

Background. The modern off-route anti-tank mine concept was developed in the mid-sixties. This effort benefited from the development of several new and much more effective man-portable anti-tank weapons such as APILAS, LAW-80, and Panzerfaust 3, which began around the same period. Among the first off-route anti-tank mine systems to be developed based on the new man-portable anti-armor technology was the British LAWMINE. The LAWMINE program was jointly developed by Insys (formerly Hunting Engineering), the prime contractor for the LAW-80 and (then) British Aerospace in response to a requirement issued by the British Army through the United Kingdom Ministry of Defence. The LAWMINE program integrated the LAW-80 man-portable anti-tank weapon with a sensor package developed by British Aerospace. Although the LAWMINE reached the project definition phase in 1984, it was canceled in November 1985. By that time, France had its own program for a new off-route anti-tank mine. Designated Mine Anti-Char Pointable a Effet Dirige (often called MACPED), this program was to develop a follow-on to the MICAH-F1. The MICAH-F1 is a horizontal attack mine that was developed and manufactured in the seventies by Giat Industries. The MICAH-F1 uses a flat cone-shaped charge activated by a combined acoustic/infrared sensor. Giat Industries had also worked on DORA, a sensor specifically designed for an off-route anti-tank mine. In 1985, a specific request for an off-route anti-tank mine was issued by the French Ministry of Defense. During the same period, Germany had initiated the indigenous development of an off-route anti-tank mine. In 1983, a competitive development program was begun for the Projectile Launching Anti-Tank Remote Action Mine, sometimes called PARM. Originally scheduled to enter service in 1988, the program was terminated in 1986.

By late 1985, the British had terminated the LAWMINE program, the French had issued a new requirement for an off-route anti-tank mine, and the Germans were having second thoughts regarding the Projectile Launching Anti-Tank Remote Action Mine. In December of 1985, the British and French decided to cooperate on the development of a new off-route anti-tank mine; the Germans joined the program in

January of 1986. The new cooperative development program was based on the Mine Anti-Char Pointable a Effet Dirige program; the British call it the Aimed Controlled Effect Anti-Tank Mine or ACEATM.

Competitive Development. The three nations involved in the development program for the Aimed Controlled Effect decided that, since the development program was being based on the French Mine Anti-Char Pointable a Effet Dirige effort, the executive agency would be the Direction des Armement Terrestres, a component of the French Ministry of Defense. In 1986, this organization issued a Request for Proposals to meet the requirement for the new weapon. The following four consortia were formed to respond to the requirement; the leader of each consortium is a French firm:

1. Matra Manurhin Defense (subsequently absorbed by Giat Industries), Société d'Etudes, de Réalisations & d'Applications Techniques, British Aerospace, and then Rheinmetall Industrie proposed the MINOS, a system using passive infrared, seismic, and acoustic sensors to activate a munition based on the APILAS munition.
2. Aerospatiale, (then) Messerschmitt-Bölkow-Blohm, and the then Marconi Defence Systems proposed the EMMA, a system based on the technology used in the MILAN and Eryx missiles and in the German Projectile Launching Anti-Tank Remote Action Mine program.
3. Télécommunications Radioélectriques et Téléphoniques, Diehl, and Plessey proposed an unnamed weapon that fired a flat cone-shaped charge activated by an infrared/electromagnetic sensor.
4. Giat Industries, Dynamit Nobel, Honeywell Regelsysteme, and (then) Hunting Engineering proposed a design called the Automatic Rocket Guardian With Electronic Sensor (sometimes called ARGES). This team's design was selected in May of 1991 for full-scale development.

Description. Little information aside from the above technical data has been released on the Aimed Controlled Effect Anti-Tank Mine program. The drawing at the end of this report gives the general configuration of the weapon.

France's withdrawal of its planned procurement necessitated a mid-1998 review of the break-out of the consortium members' responsibilities.

- Giat Industries – Overall program management, system integration.
- Société d'Etudes, de Réalisations & d'Applications Techniques – Assistance to Giat Industries for system integration.
- Dynamit Nobel – Warhead and projectile design and development, attack system integration.
- Hunting Engineering – Assistance in designing and developing High Explosive Anti-Tank warhead, propulsion system design, development, and integration.
- Honeywell Regelsysteme – Design and development of sensor package, assistance to Giat Industries in system integration.

Procurement. The procurement profile for the Aimed Controlled Effect Anti-Tank Mine by the three developing nations was originally as follows (the original figure is followed by the most recent projection):

France	30,000 - 15,000 (now 0)
Germany	50,000 - 25,000
United Kingdom	20,000 - 10,000

Further Sales? Any marketing outside the original consortium will continue to be hindered by the fact that the munition has the word "mine" in its title. In the new century, mines in general are not in favor in the world, especially in the most advanced nations. The fact that the Aimed Controlled Effect Anti-Tank Mine bears no relationship to the millions of anti-personnel land mines that have received so much worldwide attention and been addressed by the 1997 Ottawa Convention is lost on ill-informed observers.

Funding

Funding for the development of the Aimed Controlled Effect Anti-Tank Mine is being provided by the Ministries of Defense of France, Germany, and the United Kingdom. The actual contracting activity is done on the behalf of the three member nations by the Direction des Armement Terrestres, a component of the French Ministry of Defense. In 1998, France opted not to develop and procure this munition.

Recent Contracts

In May of 1991, a contract for the full-scale engineering development of the Aimed Controlled Effect Anti-Tank Mine was awarded to the consortium headed by Giat Industries. The contract was worth the equivalent of 25.8 million United States dollars and covered a time frame of 32 months. No subsequent contract information has been released.

Timetable

This timetable relates to the Aimed Controlled Effect Anti-Tank Mine weapon program only and includes all the programs that were merged with it in late 1985 and early 1986.

Month	Year	Major Development
Late	1970s	Concept development initiated
	1980	LAWMINE development phase begun
	1983	Projectile Launching Anti-Tank Remote Action Mine program begun in Germany
	1984	Mine Anti-Char Pointable a Effet Dirige development begun in France
	1985	France issued a requirement for an off-route anti-tank mine
November	1985	LAWMINE program canceled
Late	1985	France and United Kingdom joined to develop a new off-route anti-tank mine
January	1986	Germany joined the Anglo-French development program; projectile Launching Anti-Tank Remote Action Mine program merged with new development effort
March	1986	Request for Proposals issued by Direction des Armement Terrestres
Early	1986	Consortia formed to address new requirement for off-route anti-tank mine
May	1991	Automatic Rocket Guardian with Electronic Sensor program selected
Early	1998	France opted out of procurement program
May	1998	Norway selected Automatic Rocket Guardian with Electronic Sensor
Late	2001	Development and operational evaluations largely completed and low-rate serial production under way

Worldwide Distribution

Export Potential. Because of the newness of this program and the name handicap noted above, no major export of the Aimed Controlled Effect Anti-Tank Mine is expected, at least through the mid-term. As far as can be determined, the three developing nations have not solicited any other firms or nations to share in the development of this weapon. In 1996, two unidentified European nations reportedly expressed an interest in acquiring the Aimed Controlled Effect Anti-Tank Mine; in May of 1998, Norway selected the new munition to fill its Autonomt Panserern Bekjempelse requirement.

Countries. None (first production deliveries imminent).

Forecast Rationale

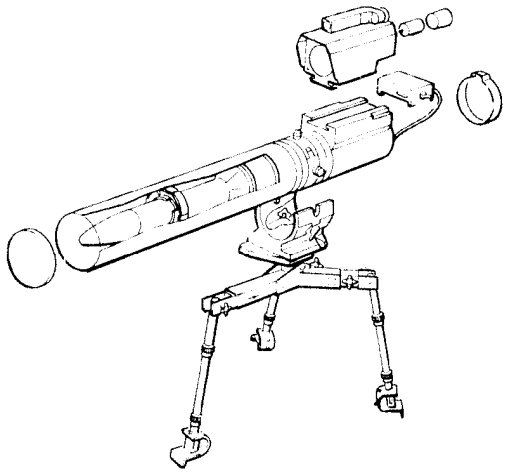
Our latest research into the Aimed Controlled Effect Anti-Tank Mine program finds that the serial production of the new weapon is gaining momentum to address the current orders including the one from Norway. Even though France's withdrawal from the in 1998 was a major blow to the program, development of the weapon has continued. Giat Industries is still the program leader, but all the information continues to support the fact that there will be no French procurement. The latest evidence still supports our projections of Germany procuring 25,000 units and the United Kingdom procuring 10,000 units. Our latest forecast is also based on the Norwegian procurement noted above and other, unidentified, production for export.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Munition	through 00	High Confidence Level 01	02	03	04	Good Confidence Level 05	06	07	Speculative 08	09	10	Total 01-10
ACEATM CONSORTIUM												
AIMED CONTROLLED EFFECT ANTI-TANK MINE (a)	711	2054	4002	6721	8219	7954	7989	4050	1003	1966	2034	45992
Total Production	711	2054	4002	6721	8219	7954	7989	4050	1003	1966	2034	45992

(a) Production through 2000 is for the developmental prototype weapons, contractor and operational test weapons. No pre-prototype competitive weapons are included. Also included is the initial low rate production. The forecast production is for the member nations plus export.



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Source: Forecast International