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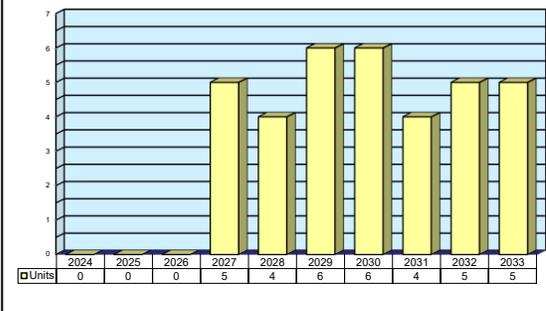
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LG1 105mm Light Gun

Outlook

- Despite aggressive marketing, the LG1 simply cannot compete with the BAE Systems L118 series Light Gun
- In 2005, the Canadian Army reported LG1 Mk II barrel cracks, caused by the increased pressure of firing extended-range ammunition
- Forecast reflects only limited potential for low-rate production to fill possible export orders

Unit Production Forecast
2024-2033



Orientation

Description. A towed 105mm artillery piece.

Sponsor. Giat Industries (now Nexter) sponsored the LG1 program as a private venture, in expectation of a French Army requirement and export sales.

Licensees. None.

Status. Development through as-needed low-rate serial production.

Total Produced. Through 2023, we estimate the contractor produced 174 LG1 towed artillery pieces.

Application. Indirect fire artillery support for maneuver forces at the company and battalion levels.

Price Range. In 2024 U.S. dollars, the LG1 carries an estimated unit price of \$683,500.

Contractors

Prime

Nexter	http://www.nexter-group.fr , 13, rue de la Minière, Versailles, France, Tel: + 33 1 39 49 30 00, Fax: + 33 1 30 97 39 00, Email: presse@nexter-group.fr , Prime
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

LG1 105mm Light Gun

Technical Data

Crew. Seven.

Muzzle Brake. Double-baffle.

Recoil System. Hydropneumatic.

Breech Mechanism. Semi-automatic vertical sliding wedge.

Carriage Type. Split-trail.

Shield. Yes.

Dimensions. The following data reflect the current production-standard LG1 Mk II.

	<u>SI Units</u>	<u>U.S. Units</u>
Caliber	105 mm	4.13 in
Length overall	6.76 m	22.17 ft
Barrel length	30 cal/3.15 m	30 cal/10.33 ft
Width	1.85 m	6.07 ft
Height (traveling)	2.0 m	6.56 ft
Traveling weight	1.49 tonnes	1.64 tons
Firing weight	1.49 tonnes	1.64 tons

Performance. The ordnance range data reflect firing base-bleed ammunition. The LG1 can accommodate a maximum tow speed of 95 kmph (59 mph).

	<u>SI Units</u>	<u>U.S. Units</u>
Elevation	+70°	+70°
Depression	-3°	-3°
Traverse	36° left/36° right	36° left/36° right
Maximum range	17,500 m	19,138 yd
Maximum rate of fire	8 rd/min	8 rd/min
Sustained rate of fire	3 rd/min	3 rd/min

Ammunition. The LG1 fires the following French-design 105mm ammunition:

- High Explosive-OE 105, OE 105 DTC, OE 105 DTC/BB
- High Explosive Anti-Tank OCC 105

The LG1 ordnance is also compatible with all NATO-standard 105mm munitions.

Variants/Upgrades

Variants. By 1994, (then) Giat Industries had integrated the LG1 ordnance with the ACMAT VLRA 6x6 truck. In this configuration (designated TH 105), the ordnance mounts at the rear of the truck bed and normally fires to the rear. The vehicle can store 64 rounds of 105mm ammunition immediately behind the cab. The TH 105 has thus far failed to generate any market interest; production is dormant.

Modernization and Retrofit Overview. The contractor has developed a kit to upgrade LG1 Mk I pieces to the current Mk III configuration. This upgrade involves changing the barrel and some recoil system components. We forecast no further modernization or retrofit programs for this ordnance.



Canadian Army 105mm LG1 Mk II Fire Mission

Source: Canadian Department of National Defence

LG1 105mm Light Gun**Program Review**

Background. In the late 1960s, the Etablissement d'Etudes et de Fabrications d'Armements de Bourges – under the government-owned Groupement Industriel des Armements Terrestres (Giat) firm – began developing a new 105mm howitzer to replace the World

First Attempt: The Canon 105 LTR

In 1971, Giat unveiled its Canon 105 LTR howitzer. This light gun exhibited a fairly conventional split-trail design. The 30-caliber ordnance featured a small shield and a double-baffle muzzle brake. In firing position, the raised wheels allowed the ordnance to rest on the float or firing platform.

The Canon 105 LTR fired NATO-standard M1 ammunition, as well as French OE 105 F1 and OE 105 DTC specialized munitions. Firing the OE 105 DTC, the ordnance had a maximum range of 17 kilometers (18,591 yd).

Throughout the 1970s, the Canon 105 LTR failed to attract any buyers. Although the contractor promoted the Canon 105 LTR for the then-developing Rapid Deployment Force trend, even the French Army selected the Thomson-DASA Armements (Thomson-Brandt) 120mm MO-120-60 heavy mortar for its light forces.

The French Army selection of the 120mm MO-120-60 heavy mortar, along with the continued success of the The move reportedly better prepared the firm for consolidation with another corporate entity.

In 2015, Krauss-Maffei Wegmann and Nexter finally signed an agreement on a merger plan.

As part of the process, the two companies contributed their shares to a newly incorporated joint holding company based in the Netherlands. They each received 50 percent of the shares of this company, which became the sole shareholder in KMW and Nexter. Completion of the merger of KMW and Nexter was formally announced in January 2016.

The merged firm is the third-largest land defense contractor in the world, behind General Dynamics and BAE Systems. Ownership is split between the French government's Giat Industries holding company and KMW parent the Wegmann Group (controlled by Germany's Bode family). At time of merger, the single entity employed around 6,000 people and had an order book of approximately EUR9 billion (\$9.9 billion), with turnover of around EUR2 billion.

Description. The LG1 is essentially an updated and refined version of the Canon 105 LTR howitzer. The

War II-vintage 105mm M101 and Model 56 Pack Howitzers still in service. However, the general lack of demand for such a new system relegated the project to backburner status, with development proceeding slowly.

(then) RO Defence 105mm L118 on the international market, again prompted Giat to discontinue the 105mm Light Gun program.

Canon 105 LTR Redux: The LG1

In 1984, Giat Industries again attempted to enter the 105mm howitzer market with an updated version of the Canon 105 LTR. The first prototype underwent firing trials in 1986 and 1987. In June 1987, the redesigned LG1 made its debut at the Satory weapons fair.

Corporate Evolution

In October 2006, Giat Industries approved a reorganization and an associated name change to Nexter. Under the restructuring, the group maintained four core operations:

- Nexter Systems
- Nexter Munitions
- Nexter Electronics
- Nexter Mechanics

LG1 integrates the Canon 105 LTR automatic wheel retraction feature with a further improved semi-automatic breech assembly mechanism. The current production-standard LG1 Mk III differs from the LG1 Mk I in its integration of a new, high-pressure autofrettaged barrel and an improved recoil system.

Marketing vs. Reality

In an already glutted international market, the French contractor claims the LG1 maintains two distinct advantages over its primary competition, the BAE Systems Land & Armaments L118 series 105mm Light Gun.

Nexter claims the LG1 is a half-tonne (1,100 lb) lighter than the L118 series Light Gun, increasing air and ground transport options.

The LG1 is compatible with NATO-standard 105mm M1 ammunition. Several million rounds of this pattern of ammunition are available worldwide. Giat contends the L118 series cannot fire M1 ammunition without a change of barrels.

LG1 105mm Light Gun

In 1987, Giat Industries began a major marketing effort for the LG1, emphasizing its advantages over the L118 series. The design has, in fact, enjoyed some moderate success in export sales. However, our research reveals the contractor's analysis of the LG1 advantages over the L118 series to be fundamentally flawed.

The actual weight difference between the LG1 and the heavier L118 works out to approximately 373 kilograms (820 lb), 20 percent of the L118 firing weight. Given the transport options available to modern forces, this difference is practically negligible.

To place this weight issue in perspective, consider that the 155mm M777A1 Joint Lightweight Howitzer for the U.S. Army and U.S. Marine Corps weighs 3.75 tonnes (4.13 tons) – over twice the weight of the L118. The M777 is air-transportable via sling-loading beneath the UH-60 Black Hawk helicopter.

While the contractor's assertion concerning the availability of older M1-pattern 105mm ammunition is quite accurate, its contention that the L118 series Light Gun as sold is incompatible with this ammunition is not entirely accurate. BAE Systems Land & Armaments offers the L118 series in three configurations:

1. The L118, which fires British-pattern ammunition.

2. The L119, which fires NATO-standard ammunition (including M1).
3. The L127, which fires Swiss-pattern ammunition.

Thus, the LG1 really does not offer any significant advantages over the L118 series. Even in terms of unit price, the LG1 is only about \$1,000 cheaper than the L118.

For a detailed discussion of the L118 series, see the "L118/L119/L127/M119 105mm Light Gun" report in this service.

A Hard Act to Follow

On the international market, the LG1 must also contend with the availability of thousands of 105mm M101 howitzers (which, of course, fire the older M1 ammunition). This reliable, combat-proven World War II-vintage ordnance is often available in like-new condition, with a price tag of only 25 percent what a new LG1 costs. Further, most nations do not field rapid deployment forces, negating the requirement for a specialized light gun of the LG1 design.

Funding

Nexter (formerly Giat Industries) has funded the LG1 development program as a private venture.

Worldwide Distribution/Inventories

Export Potential. The LG1 has been unable to seize a significant share of the market from the BAE Systems Land & Armaments L118 series, or the tried-and-true M101. While the LG1 has secured a moderate level of export sales in the past, current market conditions will not allow the LG1 to rise above the status of a secondary player.

In 2013, Nexter offered the LG1 Mk III for the Colombian Army's 105mm howitzer competition. The Colombian Army will may place an initial order for 15 pieces, and could ultimately procure up to 25 units. The LG1 Mk III bid is reportedly the favorite in the competition, despite having the highest price tag and lacking the technology transfer and factory warranties specified in the Colombian Army's solicitation. The Colombian Army already employs the LG1 howitzer, and the Army is reportedly hoping to standardize its 105mm howitzer assets in order to optimize maintenance.

Countries. Belgium, Canada, Colombia, France, Indonesia, Singapore, and Thailand

Forecast Rationale

Production of the 105mm LG1 Mk II Light Gun occurs on an as-needed basis only, for export orders. The lack of a major French Army procurement contract continues to severely hinder the potential for LG1 sales to many traditional French client states.

Barrel Weakness Issue

According to the Canadian Department of National Defence, 32 of the 40 LG1 Mk II Light Guns in Canadian Army service developed barrel cracks (at the junction of the muzzle and the muzzle brake) during

LG1 105mm Light Gun

2005. The cracks reportedly resulted from the increased pressure of firing extended-range ammunition. Giat (now Nexter) acknowledged that the problem was with the ordnance. The French contractor covered the cost of the repairs.

While Nexter may indeed have repaired the barrel weakness, the fact remains that the emergence of a barrel weakness issue only hurt the already less-than-

spectacular marketability of the LG1 on the international market.

An Also-Ran

Despite aggressive marketing efforts, the LG1 will remain only a minor player compared to its main rival, the BAE Systems L118 series 105mm Light Gun.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Nexter												
LG1												
	174	0	0	0	5	4	6	6	4	5	5	35
Total	174	0	0	0	5	4	6	6	4	5	5	35