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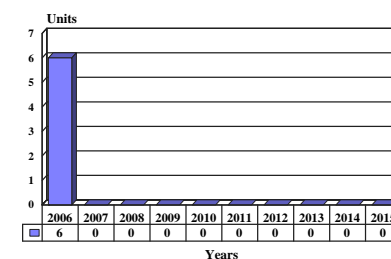
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CN-120 (F1) "Lisse" 120mm Tank Gun

Outlook

- Current serial production run appears to be in its final year, exclusively for the French AMX Leclerc main battle tank
- Any future export sales of the CN-120 (F1) will likely depend upon AMX Leclerc sales
- Production forecast reflects final deliveries supporting French Army procurement of the AMX Leclerc

10 Year Unit Production Forecast
2006 - 2015



Orientation

Description. A 120mm smoothbore tank gun.

Sponsor. The French Ministry of Defense, through the French Army, sponsored the development and French Army procurement of this ordnance.

Licensees. None

Status. Development through serial production.

Total Produced. Through 2005, Giat reportedly produced 816 CN-120 (F1) tank guns.

Application. The primary offensive and defensive armament for main battle tanks. The AMX Leclerc tank currently mounts the CN-120 (F1) as its main gun.

Price Range. In 2006 U.S. dollars, the serial-production CN-120 (for the Leclerc tank) carries a unit price of \$292,140.

Contractors

Giat Industries - Armored Systems Division, <http://www.giat-industries.fr>, 11 Allée des Marronniers, Versailles, 78022 France, Tel: + 33 1 39 49 30 00, Fax: + 33 1 39 49 34 89, Prime

NOTE(S): Giat Industries acts as the sole-source contractor for the CN-120 (F1) "Lisse" 120mm tank gun program.

Technical Data

Crew. Per particular tank.

Muzzle Brake. None

Recoil System. Hydro-pneumatic.

Breech Mechanism. Vertical sliding, semi-automatic with automatic loader (AMX Leclerc application).

Ammunition. In the AMX Leclerc application, the CN-120 (F1) typically fires the following NATO-standard (STANAG 4385) 120mm ammunition types:

- High Explosive Anti-Tank (HEAT)
- OECC 120 F1 High Explosive Anti-Tank Tracer (HEAT-T)
- OFL 120 F1/F2 Armor-Piercing Fin-Stabilized Discarding Sabot (APFSDS)

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- Armor-Piercing Fin-Stabilized Discarding Sabot Tracer (APFSDS-T)
- Target Practice Tracer (TP-T)

Dimensions. The prime contractor has released the following dimensional data.

	<u>SI Units</u>	<u>U.S. Units</u>
Caliber	120mm	4.72 in
Length overall	7.15 m	23.46 ft
Barrel length	6.2 m (51.67 cal)	20.34 ft (51.67 cal)
Weight	2,450 kg	5,390 lb
Width	50 cm	1.64 ft

Performance. The following performance data reflect the AMX Leclerc application, firing APFSDS-T ammunition.

	<u>SI Units</u>	<u>U.S. Units</u>
Elevation	+20 deg	+20 deg
Depression	-8 deg	-8 deg
Traverse	360 deg	360 deg
Muzzle velocity	1,650 m/sec	5,413.32 ft/sec
Effective range	3,500 m	3,827.63 yd

Variants/Upgrades

Variants. In July 1986, Giat proposed retrofitting the CN-120 (F1) to the Russian-design T-62 tank, replacing the original 115mm U-5TS (2A20) tank gun. Modifications to the CN-120 (F1) for this application would include changing the loading from the left to the right

side of the gun, as well as modifying the recoil system. There have been no reported sales of this package.

Modernization and Retrofit Overview. Not applicable. The contractor incorporates any improvements as production cut-ins.

Program Review

Background. In the late 1970s, as the French Ministry of Defense began developing a new tank to replace the AMX 30 by the early 1990s, it specified the new tank would mount a 120mm smoothbore main gun, in keeping with the growing NATO trend.

To make up for lost time in the field of 120mm tank gun development, the French recruited Rheinmetall DeTec – developer and producer of the smoothbore Rh 120 tank gun – to develop the new French tank gun. (For a more detailed discussion of the Rh 120, see the "Rh 120/M256 120mm Tank Gun" report in this Tab.) Giat Industries completed the first test gun in 1981; the contractor subsequently produced test guns for integration with prototypes of the AMX 32, AMX 40, AMX Leclerc, and Al-Fahd tanks.

The AMX 32 and AMX 40 programs, specifically targeting the export market, never progressed beyond the prototype stage. The AMX Leclerc became France's new main battle tank. (For more information on the Leclerc, see the "AMX Leclerc" report in Tab A (Tanks) of the *Military Vehicles Forecast*.) The now-defunct Engenheiros Especializados firm of Brazil

had specifically developed the Al-Fahd, mounting the new French ordnance, from the EE-T1 Osorio for Saudi Arabia.

The French Army designation for this gun is F1; the gun is also known as the Lisse.

Beginning in 1993, Giat Industries ran the CN-120 (F1) production line on a "just-in-time" basis, reflecting the financial straits of Giat Industries at that time.

Description. From the outset, the contractor designed the CN-120 (F1) to be interchangeable with France's long-standard 105mm CN-105-F1 tank gun. True to its Rheinmetall Rh 120 roots, the CN-120 (F1) incorporates the Rheinmetall semi-combustible cartridge case technology. The barrel fabrication process incorporates the long-proven autofrettage method; the barrel features a replaceable chromium liner.

In the AMX Leclerc application, the CN-120 (F1) employs an automatic loader, reducing the crew requirement to three men. Creusot-Loire Industrie (now a Giat Industries subsidiary) produces the autoloader. In

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the Al-Fahd version of the Osorio tank, the CN-120 (F1) employs a more conventional semi-automatic loading system.

Ammunition. Giat Industries, with the assistance of Rheinmetall DeTec (now operating as Rheinmetall Defence), initially developed an ammunition line specifically for the CN-120 (F1) ordnance. The OFL 120 F1 Armor Piercing Fin Stabilized Discarding Sabot-Tracer (APFSDS-T) round, the German DM43 round, meets the French design criterion of perforating a standard NATO armor target at 2,000+ meters (2,187 yd). The contractor has also developed the

OECC 120 F1 High Explosive Anti-Tank (HEAT) round for the CN-120 (F1). A newer APFSDS round, the enhanced-performance OFL 120 F2, became available in 1996.

The CN-120 is also compatible with all NATO-standard 120mm tank gun ammunition, including the unique Rheinmetall Lochkegelleitwerk training round.

CN-120 Design Status. While many details of the CN-120 (F1) remain classified, research indicates the design apparently remains frozen, with no new developments, since 1989.

Funding

The French Ministry of Defense, through the French Army, funded the development and procurement of the CN-120 (F1).

Contracts / Orders & Options

Not available, as the French Ministry of Defense and the prime contractor do not release contractual information regarding this program.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1978	Concept definition begun
	1979	Agreement with Rheinmetall; detail design begun; ammunition design begun
	1982	Giat delivers first test gun for static and integration tests
	1986	Integration with the Al-Fahd tank
July	1987	Saudi competitive evaluations of the Al-Fahd/CN-120 begun
February	1988	Saudi Arabia selected Al-Fahd to fill at least part of its tank requirement
February	1993	Operational testing completed
	2005	Serial production ongoing for the French Army AMX Leclerc program

Worldwide Distribution / Inventories

Export Potential. While France has historically exported 60 to 70 percent of its arms production, the CN-120 (F1) has achieved only limited success in terms of export sales.

While it is possible that Giat will be able to market the CN-120 (F1) for retrofit – replacing older CN-105-F1 and U-5TS (2A20) tank guns – the current glut of both new and used tanks on the international market will severely limit the gun’s sales prospects. The now-defunct Brazilian firm, Engenheiros Especializados, integrated the CN-120 as the main armament on a single Al-Fahd tank, a Saudi Arabian-specific version of the EE-T1 Osorio. While the Saudis selected the Al-Fahd in February 1988, their subsequent procurement of the General Dynamics M1A1 effectively killed the Al-Fahd program.

Thus, the fortunes of the CN-120 (F1) continue to be linked to the AMX Leclerc tank. However, beyond French Army procurement, the United Arab Emirates remains the only export customer for the AMX Leclerc to date.

Countries. **Brazil** (on one Al-Fahd prototype); **France** (16 on prototype AMX 32 and AMX 40 platforms; 411 on operational AMX Leclerc tanks); **United Arab Emirates** (on 388 AMX Leclerc tanks).

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Forecast Rationale

Low-rate serial production of the 120mm CN-120 (F1) tank gun is ongoing, exclusively for the French AMX Leclerc main battle tank. As the AMX Leclerc is the only operational application for the CN-120 to date, production of this ordnance remains dependent upon the fortunes of the AMX Leclerc program.

Giatt will reportedly complete deliveries of the AMX Leclerc main battle tank under the French Army procurement contract this year. The Leclerc inventory will then consist of 406 operational main battle tanks, as well as nine prototypes and two Tropicalized Leclerc demonstration tanks.

In 2004, the United Arab Emirates took delivery of the last of the 388 Tropicalized Leclerc main battle tanks

from the original 1993 order. Giatt Industries continues its aggressive promotion of the Leclerc and the CN-120 on the international market. However, the Leclerc has yet to score any export sales beyond the UAE.

Our 10-year production outlook reflects the remaining baseline CN-120 (F1) production run for the final French Army AMX Leclerc main battle tank procurement increment. At present, the French Army is unlikely to expand its AMX Leclerc procurement objective. Consequently, the future of the CN-120 (F1) program lies with the uncertain prospects for future export or retrofit orders.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Ordnance	(Engine)	thru 05	High Confidence Level				Good Confidence Level				Speculative		Total 06-15	
			06	07	08	09	10	11	12	13	14	15		
GIAT INDUSTRIES														
CN-120 LISSE (a)	NO ENGINE	816	6	0	0	0	0	0	0	0	0	0	0	6
Total Production		816	6	0	0	0	0	0	0	0	0	0	0	6

(a) The through 2005 production includes 12 prototype and development cannon, as well as five cannon used for integration with various tank platforms.



120mm CN-120 (F1) "Lisse" on the AMX Leclerc

Source: French Ministry of Defense