

# ARCHIVED REPORT

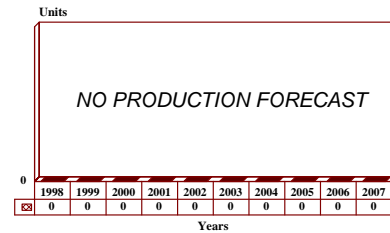
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## Jaguar - Archived 4/98

### Outlook

- Program as it was previously existing is presently dormant due to international politics
- No further development is expected in the United States of America
- No further activity is expected in this program

10 Year Unit Production Forecast  
1998-2007



### Orientation

**Description.** A tank

**Sponsor.** Originally, the Jaguar was a private development program funded between the prime contractors; subsequently, Textron Marine and Land Systems has been supporting this program on its own.

**Contractors.** Development of the program was originally planned by a consortium of Cadillac Gage Textron (now Textron Marine and Land Systems/Cadillac Gage, New Orleans, Louisiana, United States, and China National Machinery & Equipment Import and Export Corporation, Beijing, People's Republic of China; the consortium was to manufacture this tank, but in mid 1989, the then Cadillac Gage Textron proceeded with the development of the program on its own. The major subcontractors include Detroit Diesel Corporation, Allison Transmission Division of General Motors Corporation, and Marconi Radar and Command Systems.

**Licensees.** None

**Status.** The Jaguar program is in suspended development following a continued development and testing phase which was funded by the contractor Textron Marine and Land Systems. The Jaguar program was most recently reoriented by Textron Marine and Land Systems (Cadillac Gage) to a retrofit effort for existing Type 59 as well as T.54 and T.55 tanks. However, by 1997, no further marketing of the Jaguar was apparent.

**Total Produced.** As of January 1, 1998, a total of two Jaguar prototype tanks had been manufactured. However, one prototype had been dismantled for spare parts.

**Application.** A tank for the projection of power as well as defensive missions. As it was originally conceived, this tank was optimized for the People's Liberation Army and the export market.

**Price Range.** If it is ever placed in serial production, the Jaguar is indicated by our research to have a unit price of \$2.886 million in 1998 United States dollars.

### Technical Data

Since the Jaguar program is still in its prototype development phase and a private program, the detailed technical specifications and dimensions of the tank are not known. The prototype Jaguar is based on a heavily modified Type 59 tank chassis.

**Crew.** Four: commander, gunner, loader and driver

**Armor.** The hull and turret have the basic Type 59 conventional steel alloy armor to which a layer of appliqué armor has been added.

**Dimensions.** The following data are for the latest prototype. The fuel capacity is estimated based on the dimensional data of the Type 59 and other data.

	<u>SI units</u>	<u>US units</u>
Length	9.59 meters	31.46 feet
Width	3.27 meters	10.73 feet
Height	2.63 meters	8.63 feet
Combat weight	42.02 tonnes	46.32 tons
Fuel capacity	902 liters	239.89 gallons

**Performance.** The maximum speed and range figures are on a metalled road. The maximum range is estimated based on the technology employed in this tank.

Maximum speed	55 kilometers per hour	34.16 miles per hour
Maximum range	540 kilometers	335.34 statute miles
Step	80 centimeters	2.62 feet
Trench	2.7 meters	8.86 feet
Slope	30%	30%
Gradient	60%	60%
Fording	1.1 meters	3.61 feet

**Engine.** The prototype is powered by the 8V-92TA liquid cooled two cycle diesel engine manufactured by Detroit Diesel Corporation. This supercharged engine is rated at 559.5 kilowatts (750 horsepower) at 38.34 revolutions per second (2,300 revolutions per minute). The power-to-weight ratio is 13.32 kilowatts per tonne (16.19 horsepower per ton). A 24 volt electrical system is fitted.

**Gearbox.** The Allison Transmission Division of General Motors Corporation supplies the automatic XTG-411 gearbox for the Jaguar. This gearbox has four forward and two reverse gear ratios.

**Suspension and Running Gear.** This tank uses a torsion bar suspension with five road wheels on each side. A Cadillac Gage Textron hydro-pneumatic suspension system can be fitted if required.

**Armament.** The Jaguar mounts a modified version of the Royal Ordnance L7 tank cannon which is 105 millimeters in caliber. All NATO standard 105 millimeter ammunition types can be fired from this tank cannon. An unspecified 7.62 millimeter machine gun is coaxially mounted, while an M2HB 12.7 millimeter machine gun is mounted on the turret top. Four electrically operated smoke grenade launchers are mounted on each side of the turret.

**Fire Control.** The Jaguar fire control suite features the Marconi Radar and Command Systems' Digital Fire Control System. A laser rangefinder and image intensification sight are fitted in the tank, and Cadillac Gage electro-hydraulic gun control and full stabilization helps the Jaguar to fire while on the move. A variety of options for the fire control components, including various day and night vision devices, are available.

## Variants/Upgrades

**Variants.** None have been developed and none are expected.

**Modernization and Retrofit Overview.** Not applicable at this time.

## Program Review

**Background.** In late 1988, at the Defendory weapons fair, the then Cadillac Gage Textron and China National Machinery & Equipment Import and Export Corporation announced the joint development of a new tank called the Jaguar. Aside from a major potential to replace the People's Republic of China's thousands of T.54/55 and Type 59 tanks, the Jaguar was also apparently designed

from the outset for the export market. The rationale behind the development was that the large number of nations, possessing Russian T.54 and T.55 tanks and thinking of the possible modernization/retrofit, might instead opt for a new tank if the price was moderately acceptable. Apparently, both companies concluded that if a new tank could be offered at a price within a quarter million dollars

or so of a major modernization/retrofit offer, the user could probably be swung over to purchase the new tank. Since a major modernization/retrofit program to bring a T.55 up to generally acceptable Western standards then cost around \$800,000, it was decided to keep the unit price of the new tank under a million dollars. It was announced at the Defendory weapons fair, in October of 1988, that the main targets for the Jaguar tank were to be the markets in Africa and the Far East. In 1994, Textron Incorporated re-organized its defense sector with Cadillac Gage Textron being integrated with the Marine Systems division as Textron Marine and Land Systems, headquartered in New Orleans, Louisiana.

Agreement. For the Jaguar program, Cadillac Gage Textron and China National Machinery & Equipment Import and Export Corporation agreed on an equal 40 percent split in supplying components; the remaining 20 percent was offered to other international contractors. The first prototype, based on a heavily modified Type 59 tank, was fabricated in the United States and initially tested in Nevada. This tank was then shipped to the People's Republic of China for further tests and then returned to the United States. The actual serial production program was planned to be undertaken in China due to lower production costs. However, following the events in China in mid-1989, the then Cadillac Gage Textron decided to continue the program by itself, using the tank shipped to China for parts to keep the other tank operational. Subsequently, the exact status of the agreement between the two firms was never made clear.

Description. Because it is a private design in a highly competitive market, very few technical details of the proposed definitive Jaguar tank were ever made available. It is, however, known that the prototype is based on a heavily modified Type 59 tank chassis. The chassis has been lengthened; five Type 59 road wheels along with the rear sprocket and front idler are also from the Type 59. The torsion bar suspension is also a Type 59 component, albeit strengthened. However, if the Jaguar tank ever

enters serial production, it is expected to use Textron's (Cadillac Gage) much more modern hydro-pneumatic suspension components which will increase cross country mobility. As the program was originally conceived, the Chinese were to provide the indigenous stratified and/or composite armor for the Jaguar.

The engine that powers the prototype Jaguar is the 8V-92TA diesel from Detroit Diesel Corporation. However, this engine's power rating (as detailed in the pertinent section above) would seem to result in a rather anemic performance for the Jaguar. While far from a certain thing, we project that a more powerful engine will be offered on production tanks, if only as an option.

While the exact model, source and/or version of the L7 main armament is still unknown, by virtue of being the most ubiquitous as well as the most accurate Western tank cannon in the world, it is thus a major marketing asset. For marketing the Jaguar, the gun, firing the latest technology ammunition, which can be obtained from a number of sources, can deal with any threat for many years to come.

Redirection. Following the events that took place in the People's Republic of China in mid-1989, relations between that nation and the United States of America cooled somewhat. As a result of this cooling, a number of weapons-related programs between the Chinese and the United States were suspended or otherwise affected; among these was the Jaguar program. The contractor Textron Marine and Land Systems (Cadillac Gage) continued the Jaguar development effort on its own, but slowly re-oriented the program to a modernization/retrofit effort for the tens of thousands of T.54, T.55 and Type 59 tanks in the world. Being especially targeted are those nations operating the aforementioned tanks that have access to United States' military aid funds. However, as of the mid-nineties, this market had yet to really develop and by 1997, the Jaguar program, both for new production tanks and for the modernization and retrofit of existing tanks, was essentially dormant with no marketing evident.

## Funding

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As this program was initially a private development between the prime contractors, all funding was provided by these firms. All the evidence indicates that Textron Marine and Land Systems is now funding this program on its own.

## Recent Contracts

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Not available as contractual information has not been released.

## Timetable

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This timetable is applicable to the Jaguar program only.

	1984	Concept development for low cost tank initiated by Cadillac Gage and China National Machinery & Equipment Import and Export Corporation
October	1988	Jaguar program unveiled at Defendory weapons fair
	1989	Prototype testing in United States and China
Early	1990s	Program re-oriented toward modernization/retrofit market
Early	1998	Prototype development and testing remains dormant

## Worldwide Distribution

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**Export Potential.** In the highly competitive export market for military vehicles, the rationale of Textron Marine and Land Systems/Cadillac Gage and China National Machinery & Equipment Import and Export Corporation certainly seemed justified when it was first envisioned. The idea to develop a new tank that costs only a little more than a major upgrade of an existing T.55 or similar tank certainly indeed has some merit. But the ongoing tremendous glut of tanks on the market, a glut that is likely to further increase in the coming ten years, is putting a severe strain on the marketing of new tanks everywhere in the world. The M60, several thousand of which are on the market, is especially troublesome; the AMX 30 is expected to be another problem, especially in Africa, one of the target markets for the Jaguar. These used but fully serviceable tanks are more than sufficient to deal with other tanks in the Third World; this is especially true with the M68 gun of the M60, which fires the latest pattern M900 or Israeli ammunition.

Even if it went into production (which we do not forecast), it is doubtful that the Jaguar tank would have any impact on the Chinese market. In China, the Jaguar is in direct competition with several new indigenous designs for the People's Liberation Army's modernization program.

**Countries. United States** (two prototypes with the contractor)

## Forecast Rationale

Our latest research into the Jaguar program finds that, as of early 1998, the program remains in the doldrums with the development essentially dormant. In point of fact, the marketing effort for the Jaguar was apparently wound up in late 1996 or early 1997. All this is almost certainly due to the often mentioned glut of used Western tanks on the market, often being given away for the cost of transportation.

While one of the program's original aims was for a potential major production run to replace the People's Liberation Army's old T.54/55 tanks, due to the reasons outlined above, we continue to not forecast such an event. We have long projected that one of the new and highly effective indigenous Chinese designs covered in this section would get the nod for this replacement program; this evidence, detailed in the pertinent report, indicates that this has come to pass. The evidence also indicates that there is essentially no chance for any sales of new-production Jaguar tanks on the glutted international

market. Further hindering the chances for the sale of new production Jaguar tanks in a difficult to quantify manner is the contractor's somewhat tarnished reputation acquired from the Commando Stingray tank program.

Since there is essentially no potential for new production Jaguar tanks, the only possible hope for the program as a whole is for the retrofit of existing Type 59, T.54 and T.55 tanks. However, this market, which has never developed as was previously thought by most observers, is already saturated with numerous offerings available, most of which are still waiting for their first order. And, again, those thousands on M60 and similar generation Western tanks has killed most of the potential T.54/T.55/Type 59 modernization and retrofit market. We will continue to monitor developments in this area but if nothing new takes place with the Jaguar program, it will be dropped at this time next year.

## Ten-Year Outlook

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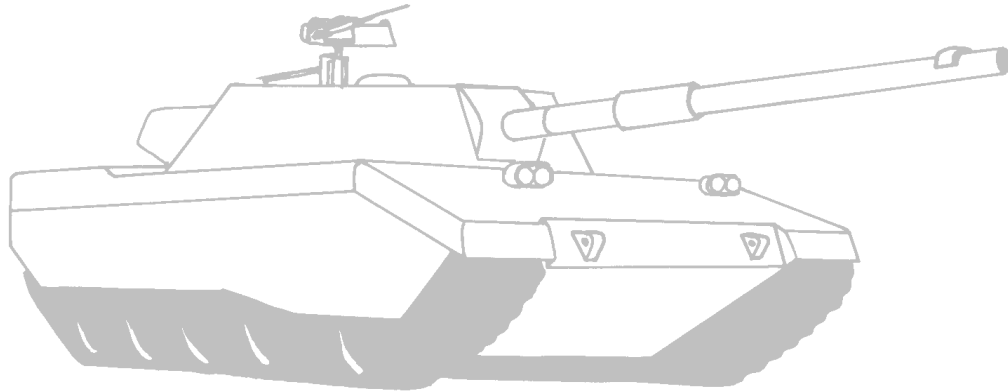
ESTIMATED CALENDAR YEAR PRODUCTION

<u>High Confidence</u>	<u>Good Confidence</u>	<u>Speculative</u>
<u>Level</u>	<u>Level</u>	

Total

Vehicle	(Engine)	through	97	98	99	00	01	02	03	04	05	06	07	98-07
CADILLAC GAGE	TEXTRON/CMEC (Co-Production)													
JAGUAR(a)	8V-92TA		2	0	0	0	0	0	0	0	0	0	0	0
Total Production			2	0	0	0	0	0	0	0	0	0	0	0

(a) Production shown is for the initial prototypes, one of which has been dismantled for spare parts.



JAGUAR

Source: Forecast International