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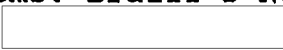
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Washington, D.C. 20505


DIRECTORATE OF INTELLIGENCE

20 May 1988

**BRAZIL: Orbita Aerospace Systems: Brazil's Newest Missile Developer** 



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**Summary**

The creation of the Orbita firm last year as a new, centralized missile research and development center suggests that Brasilia hopes to step up its effort to enter the international missile market. The new company, strongly backed by the federal government and the military, will be able to utilize the production, research, and, presumably, the computing facilities of its parent firms, as well as their established marketing expertise. Even so, Orbita faces some significant hurdles, since its financial prospects are cloudy and many of its projects are in trouble on technical grounds. 

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A Newcomer With Clout

*Orbita Aerospace Systems, S.A.* is a new, and potentially key part of Brazil's military-industrial establishment. With considerable impetus from the government, the firm was created in early 1987 to facilitate missile research and development. Orbita will produce prototypes which, once they are proven, will be turned over for production to the firm's parent companies. *Engesa*, the armored vehicle and munitions manufacturer, holds 40 percent of Orbita stock, while an additional 40 percent share is controlled by *Embraer*, the civil and military aircraft company. The remainder is held by several munitions firms such as *Imbel*, and defense electronics firms like *Parcom*. Orbita is temporarily utilizing *Embraer*'s industrial plant in Sao Jose dos Campos, Sao Paulo State, for its projects, and houses many of its personnel in a building near the *Embraer/Aerospace Technical Center* complex. However, the US defense attache reports that in July Orbita will occupy two new buildings of its own. [redacted]

Orbita's leadership illustrates the web of relationships that ties together the defense establishment, and reflects the military's strong interest in the company. Orbita's most important officer--its vice-president in charge of research and development--is General Hugo Piva, the former head of the Aerospace Technical Center (CTA), the Air Force's aircraft, missile, and avionics design center. A number of active duty military officers are on the firm's board of directors, according to the US Embassy. Vito Antonio di Grassi, a vice-president of *Engesa* and close associate of *Engesa* president Jose Whittaker Ribeiro, is the president of Orbita. Di Grassi's lieutenants are mainly drawn from *Engesa* and *Embraer*. [redacted]

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Why Orbita?

We believe Brazilian officials clearly hope the government-influenced company will serve as a focal point for missile and rocket development. Di Grassi has told US officials that Orbita will work in direct cooperation with CTA and the armed forces in order to fulfill Brazil's missile requirements into the 1990s under the ambitious military modernization program. He also indicated that Orbita will devote growing resources in the future toward helping CTA develop Brazil's space launch vehicle. To that end, Orbita may have acquired some of the high grade scientific and engineering talent CTA was losing last year due to poor government pay, according to the US Embassy. [redacted]

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We believe *Engesa*'s strong desire to diversify its operations also helped spur the new company's creation. *Engesa* executives probably hope that Orbita's focus on missile and

related technology will complement Engesa's existing product lines and provide entree into a new market with both Brazilian and Third World customers. In fact, Orbita officials have accompanied Engesa and Embraer representatives on foreign sales trips. General Piva, for example, travelled to the United Arab Emirates, Iraq, and Libya in late 1987 to discuss Orbita's projects. [redacted]

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Finally, we judge that the Brazilian government encouraged the creation of Orbita to spark competition with Avibras, a private sector firm that has built several successful, but not highly advanced, rocket systems for the Brazilian military and for export markets. Avibras, which produces the well known Astros II multiple rocket launcher system, is working on the Sonda IV sounding rocket for the Air Force and is reportedly designing a tactical surface-to-surface missile. We believe Brasilia hopes the creation of Orbita will prompt Avibras to be more aggressive in venturing beyond the projects with which it has already succeeded. Even if Avibras should falter, Brasilia probably hopes that Orbita, more responsive to government needs, can help meet Brasilia's goals. [redacted]

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#### Drawing Strength From Its Parents

Orbita itself is small, thus far, but its impact is magnified, in our view, by its ability to call on the many resources of its parent firms. For example, Engesa's general fabrication facilities are readily available to Orbita, as is Embraer's extensive aerodynamic research effort. Imbel is a source of explosives technology, while electronics and avionics expertise can also be obtained from other Orbita shareholders, such as Control and Automation Systems Engineering, S.A. [redacted]

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Orbita's capabilities will also be strengthened if, as we expect, it is able to tap into the computing power of its parents. For example, Orbita personnel almost certainly have access to Engesa's VAX-750 computer, which utilizes Brazilian design software [redacted]. Orbita probably also will be able to draw upon Embraer's IBM 3090 supermini computer, acquired in 1987, which has a Computer Aided Design, Computer Assisted Manufacturing (CAD/CAM) system, according to the US defense attache. Moreover, Orbita probably will begin to acquire its own computer capability, looking to US or European computers. [redacted]

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#### Orbita's Agenda

Orbita is currently developing a wide range of missiles for the Brazilian military and for possible export to Third World

customers. The firm is pressing hardest to begin production of the Leo-1 anti-tank missile, a project inherited from Engesa. Man-portable and laser guided, the Leo-1 is the Brazilian copy of Italy's MAF anti-tank missile, and is being developed jointly with Oto-Melara of Italy. It has a planned range of 4-5 kilometers and will be mounted on light vehicles and helicopters. Named in honor of Army Minister Leonidas, the Leo is intended for delivery to the Brazilian Army in 1989, but its primary market probably will be overseas, where it will face stiff competition from Western and Soviet anti-tank weapons. [REDACTED]

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Technical problems may delay the Leo's entry into production. [REDACTED]

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The Brazilian Army is unhappy with the missile's progress, having given Orbita an advance payment on its contract, and has assigned 20 Army technicians to Orbita to assist, according to the US Embassy. Orbita officials, moreover, believe Oto-Melara is withholding information that would help them solve the problem because of Orbita's failure to keep current its payments to Oto-Melara. [REDACTED]

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Orbita also inherited the former "Piranha" or MAA-1 air-to-air missile project begun by CTA and D.F. Vasconcellos in 1980, and later taken on by Engesa, as a replacement for the Brazilian Air Force's Sidewinder missiles. Orbita calls this missile the MOL-1. According to unconfirmed press reports, the Air Force has contracted for 250 MOL-1s, probably with an eye toward deploying them when its new AMX attack plane enters service next year. The US defense attache believes the MOL-1 will not meet the Air Force's needs, however; the missile has been plagued by technical problems from the start, and probably will be inferior to US, European, and Soviet systems when it finally enters production. Orbita apparently has recently sought assistance from the French firm, Avions Marcel Dassault, for the MOL-1. [REDACTED]

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There are unconfirmed reports that Orbita is also developing a shoulder-fired, surface-to-air missile jointly with British Aerospace, according to the US Embassy, but little is known about the project. The missile, known as the MSA 1.3 or MSAAV, has a planned range of seven kilometers, and is intended for use against light vehicles as well. Press reports indicate it is similar to the shorter range British Javelin surface-to-air missile, and would be used primarily by Brazil's Army. [REDACTED]

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Orbita has started designing a mobile surface-to-surface missile, the TM-1.<sup>1</sup> Originally begun by Engesa, the unguided version of this missile is intended for area saturation in support of infantry, with a range of 40-120 kilometers. [REDACTED]

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[REDACTED] The missile would carry a 640 kilogram high explosive warhead, and press reports indicate that the launchers would be mounted on a semi-armored chassis. We judge that the missile's development is in very preliminary stages at this time, and could take five or more years, and probably would require foreign assistance. [REDACTED]

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### Outlook

While the Brazilians clearly hope the creation of Orbita will speed the development of its missile program and open up new export markets, Orbita faces major hurdles in the near term. The technical difficulties it is encountering in several of its projects could render some systems obsolete before they reach production. Other projects are so complex that it will be years before they can be completed. For example, Orbita's air-to-air missile is probably only an interim solution to the Brazilian Air Force's search for a Sidewinder replacement, and it will be outclassed by US and European equivalents. [REDACTED]

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The other major hurdle is Orbita's ability to remain solvent until its longterm projects are completed. The MSA and the TM-1 are probably only on the drawing boards at this point, and prototypes are years away. Only the Leo anti-tank missile is close to providing an early return on investment, and its sales prospects beyond the Brazilian military are uncertain. Given the financial difficulties of its parents, Orbita may be in for lean times--basically living off cash advances on contracts extended by the Brazilian government and investments by the military, possibly from the armed forces' secret contingency fund. [REDACTED]

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<sup>1</sup>We believe the TM-1 is the same basic design as the MB/EE-1 missile that press reports indicate Orbita has offered to the Libyans. The MB/EE is planned as a series of missiles, some of which would have greater range than the TM-1. [REDACTED]

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SUBJECT: Brazil: Orbita Aerospace Systems: Brazil's Newest  
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