TWO COMMUNICATIONS SATELLITES READY FOR LAUNCH

Arianespace will orbit two communications satellite on its fifth launch of the year: INTELSAT 17 for the international satellite operator Intelsat, and HYLAS 1 for the European operator Avanti Communications.

The choice of Arianespace by leading space communications operators and manufacturers is clear international recognition of the company's excellence in launch services. Based on its proven reliability and availability, Arianespace continues to confirm its position as the world's benchmark launch system.

Ariane 5 is the only commercial satellite launcher now on the market capable of simultaneously launching two payloads.

Arianespace and Intelsat have built up a long-standing relationship based on mutual trust. Since 1983, Arianespace has launched 48 satellites for Intelsat.

Positioned at 66 degrees East, INTELSAT 17 will deliver a wide range of communication services for Europe, the Middle East, Russia and Asia. Built by Space Systems/Loral of the United States, this powerful satellite will weigh 5,540 kg at launch. It will also enable Intelsat to expand its successful Asian video distrubution neighborhood. INTELSAT 17 will replace INTELSAT 702.

HYLAS 1 is Avanti Communications' first satellite. A new European satellite operator, Avanti Communications also chose Arianespace to orbit its HYLAS 2 satellite, scheduled for launch in the first half of 2012.

HYLAS 1 was built by an industrial consortium formed by EADS Astrium and the Indian Space Research Organisation (ISRO), using a I-2K platform. Fitted with Ka-band and Ku-band transponders, the satellite will be positioned at 33.5 degrees West, and will be the first European satellite to offer high-speed broadband services across all of Europe. HYLAS 1 will weigh 2,570 kg at launch, and has a design life exceeding 15 years.

Follow the launch live on the internet broadband
at www.arianespace.com
(starting 20 minutes before lift-off)

1. Mission profile

The 198th Ariane mission will place two communications satellite into geostationary transfer orbit: INTELSAT 17 for the international satellite operator Intelsat, and HYLAS 1 for the European operator Avanti Communications.

This will be the 54th Ariane 5 launch.

The launcher will be carrying a total payload of 8,867 kg, including 8,069 kg for the INTELSAT 17 and HYLAS 1 satellites, which will be released into their targeted orbits.

The launch will be from Ariane Launch Complex No. 3 (ELA 3) in Kourou, French Guiana.

Injection orbit

Perigee altitude	***250 km***
Apogee altitude	***35,786 km at injection***
Inclination	***2° degrees***

The lift-off is scheduled on the night of November 26 to 27, 2010 as soon as possible within the following launch window:

Launch opportunity

	Universal time (GMT)	*Paris time*	*Kourou time*	*Washington time*	*Tokyo time*
Between	*6:39 pm*	*7:39 pm*	*3:39 pm*	*2:39 pm*	*3:39 am*
and	*9:54 pm*	*10:54 am*	*6:54 pm*	*5:54 pm*	*6:54 am*
on	*November 26, 2010*	*November 26, 2010*	*November 26, 2010*	*November 26, 2010*	*November 27, 2010*

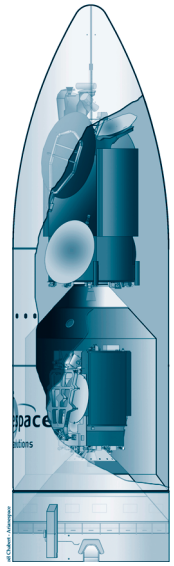
Configuration of Ariane payload

The INTELSAT 17 satellite was built by Space Systems/Loral, in Palo Alto, California, for the operator Intelsat.

Orbital position: 66° East

The HYLAS 1 satellite was built by an industrial consortium comprising EADS Astrium (Stevenage and Portsmouth, UK facilities) and the Indian Space Research Organisation (ISRO), based in Bangalore, on behalf of the European operator Avanti Communications.

Orbital position: 33,5° West



2. Range operations campaign: ARIANE 5 - INTELSAT 17 & HYLAS 1

Satellites and launch vehicle campaign calendar

Ariane activities	*Dates*	*Satellites activities*
Campaign start review	*September 17, 2010*	
EPC Erection	*September 17, 2010*	
EAP transfer and positionning	*September 18, 2010*	
Integration EPC/EAP	*September 20, 2010*	
ESC-A and VEB Erection	*September 22, 2010*	
	October 12, 2010	*Arrival in Kourou of HYLAS 1 and beginning of preparation campaign in building S1 B*
	October 25, 2010	*Arrival in Kourou of INTELSAT 17 and beginning of preparation campaign in building S1 B*
Roll-out from BIL to BAF	*November 5, 2010*	
	November 8-10, 2010	*HYLAS 1 filling operations*
	November 11-13, 2010	*INTELSAT 17 filling operations*

Satellites and launch vehicle campaign final calendar

J-11	*Sunday, November 14*	*INTELSAT 17 integration on adaptor (ACU)*
J-10	*Monday, November 15*	*INTELSAT 17 transfer to Final Assembly Building (BAF) and HYLAS 1 integration on adaptor*
J-9	*Tuesday, November 16*	*INTELSAT 17 integration on Sylda*
J-8	*Wednesday, November 17*	*Fairing integration on Sylda - HYLAS 1 transfer to Final Assembly Building (BAF)*
J-7	*Thursday, November 18*	*HYLAS 1 integration on launcher*
J-6	*Friday, November 19*	*Upper composite integration with INTELSAT 17 on launcher*
J-5	*Saturday, November 20*	*ESC-A final preparations and payloads control*
J-4	*Monday, November 22*	*Launch rehearsal*
J-3	*Tuesday, November 23*	*Arming of launch vehicle*
J-2	*Wednesday, November 24*	*Arming of launch vehicle* *Launch readiness review (RAL) and final preparation of launcher*
J-1	*Thursday, November 25*	*Roll-out from BAF to Launch Area (ZL), launch vehicle connections and filling of the EPC liquid Helium sphere*
J-0	*Friday, November 26*	*Launch countdown including EPC and ESC-A filling with liquid oxygen and liquid hydrogen*

3. Launch countdown and flight events

The countdown comprises all final preparation steps for the launcher, the satellites and the launch site. If it proceeds as planned, the countdown leads to the ignition of the main stage engine, then the two boosters, for a liftoff at the targeted time, as early as possible in the satellites launch window.
The countdown culminates in a synchronized sequence (see appendix 3), which is managed by the control station and onboard computers starting at T-7 minutes.
If an interruption in the countdown means that T-0 falls outside the launch window, then the launch will be delayed by one, two or more days, depending on the problem involved, and the solution developed.

Time		*Events*
– 11 h	*30 mn*	*Start of final countdown*
– 7 h	*30 mn*	*Check of electrical systems*
– 4 h	*50 mn*	*Start of filling of main cryogenic stage with liquid oxygen and hydrogen*
– 3 h	*20 mn*	*Chilldown of Vulcain main stage engine*
– 1 h	*10 mn*	*Check of connections between launcher and telemetry, tracking and command systems*
	– 7 mn 00 s	*"All systems go" report, allowing start of synchronized sequence*
	– 4 mn 00 s	*Tanks pressurized for flight*
	– 1 mn 00 s	*Switch to onboard power mode*
	- 05,5 s	*Command issued for opening of cryogenic arms*
	– 04 s	*Onboard systems take over*
	– 03 s	*Unlocking of guidance systems to flight mode*

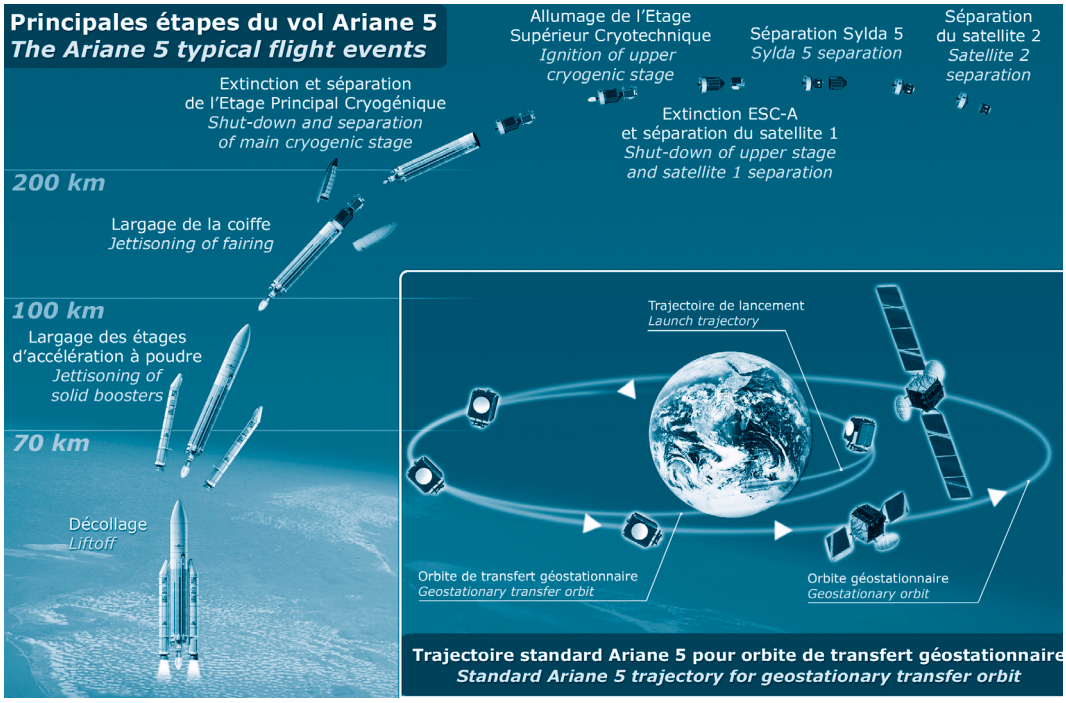
HO	*Ignition of the cryogenic main stage engine (EPC)*		*ALT (km)*	*V. rel. (m/s)*
	+ 7,05 s	*Ignition of solid boosters*	*0*	*0*
	+ 7,3 s	*Liftoff*	*0*	*0*
	+ 12,5 s	*End of vertical climb and beginning of pitch rotation (10 seconds duration)*	*0.090*	*37.7*
	+ 17 s	*Beginning of roll manoeuvre*	*0.347*	*77.1*
+ 2 mn	*20 s*	*Jettisoning of solid boosters*	*67.1*	*1987*
+ 3 mn	*9 s*	*Jettisoning of fairing*	*106.8*	*2191*
+ 7 mn	*48 s*	*Acquisition by Natal tracking station*	*179.7*	*5495*
+ 8 mn	*56 s*	*Shut-down of main cryogenic stage*	*177.8*	*6897*
+ 9 mn	*02 s*	*Separation of main cryogenic stage*	*177.8*	*6924*
+ 9 mn	*06 s*	*Ignition of upper cryogenic stage (ESC-A)*	*177.8*	*6926*
+ 13 mn	*27 s*	*Acquisition by Ascension tracking station*	*187*	*7521*
+ 18 mn	*19 s*	*Acquisition by Libreville tracking station*	*213*	*8325*
+ 23 mn	*07 s*	*Acquisition by Malindi tracking station*	*469*	*9083*
+ 24 mn	*51 s*	*Shut-down of ESC-A / Injection*	*649.3*	*9357.8*
+ 27 mn	*29 s*	*Separation of INTELSAT 17 satellite*	*1044*	*9030*
+ 29 mn	*46 s*	*Separation of Sylda 5*	*1466*	*8706*
+ 34 mn	*51 s*	*Separation of HYLAS 1 satellite*	*2596.7*	*7945*
+ 49 mn	*40 s*	*End of Arianespace Flight mission*	*6354.2*	*6105*

4. Flight trajectory of INTELSAT 17 & HYLAS 1

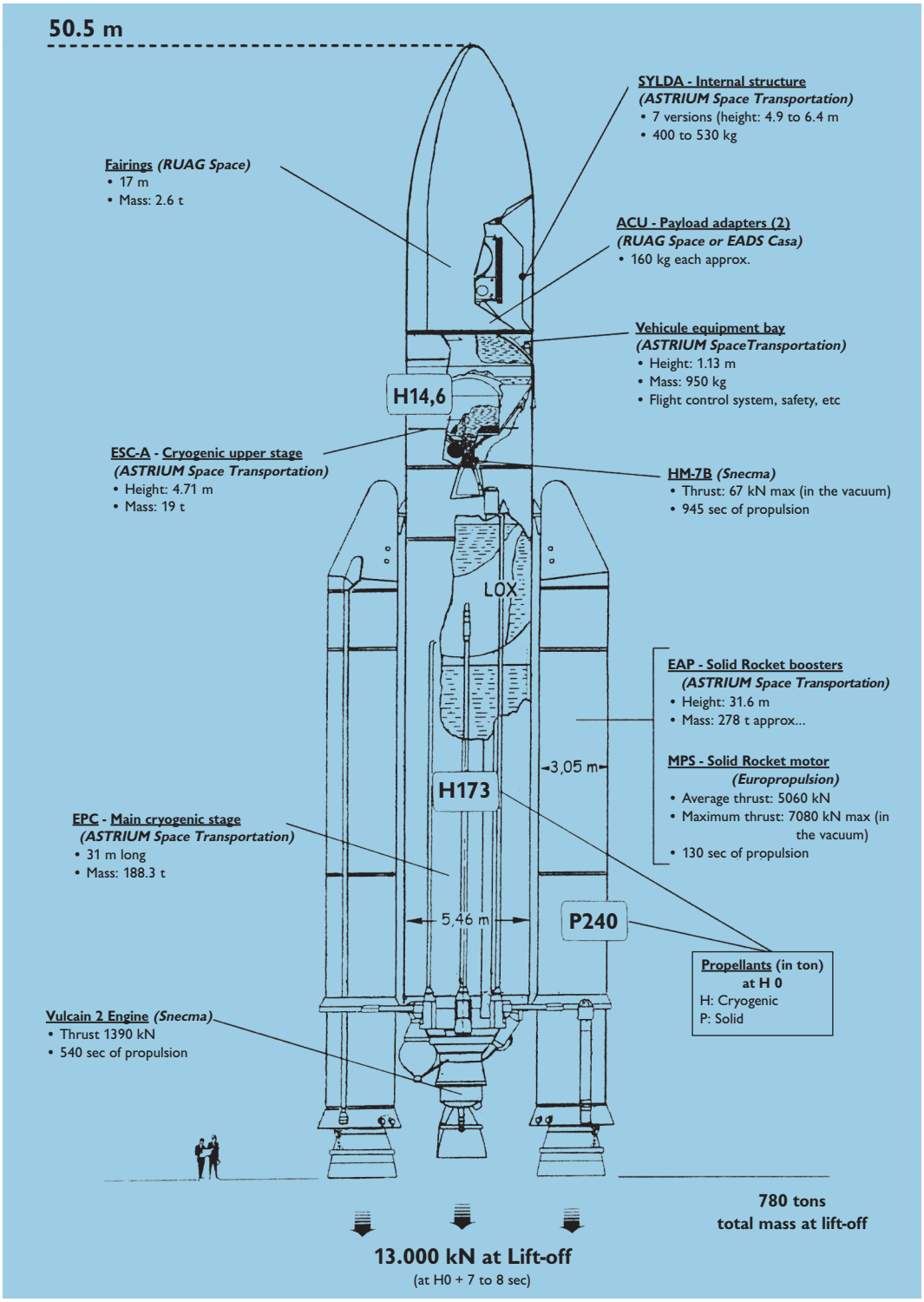
The launcher's attitude and trajectory are totally controlled by the two onboard computers, located in the Ariane 5 vehicle equipment bay (VEB).
7.05 seconds after ignition of the main stage cryogenic engine at T-0, the two solid-propellant boosters are ignited, enabling liftoff. The launcher first climbs vertically for 6 seconds, then rotates towards the East. It maintains an attitude that ensures the axis of the launcher remains parallel to its velocity vector, in order to minimize aerodynamic loads throughout the entire atmospheric phase, until the solid boosters are jettisoned.
Once this first part of the flight is completed, the onboard computers optimize the trajectory in real time, minimizing propellant consumption to bring the launcher first to the intermediate orbit targeted at the end of the main stage propulsion phase, and then the final orbit at the end of the flight of the cryogenic upper stage.
The main stage falls back off the coast of Africa in the Atlantic Ocean (in the Gulf of Guinea).

On orbital injection, the launcher will have attained a velocity of approximately 9358 meters/second, and will be at an altitude of about 650 kilometers.
The fairing protecting the INTELSAT 17 and HYLAS 1 spacecraft is jettisoned shortly after the boosters are jettisoned at about T+189 seconds.

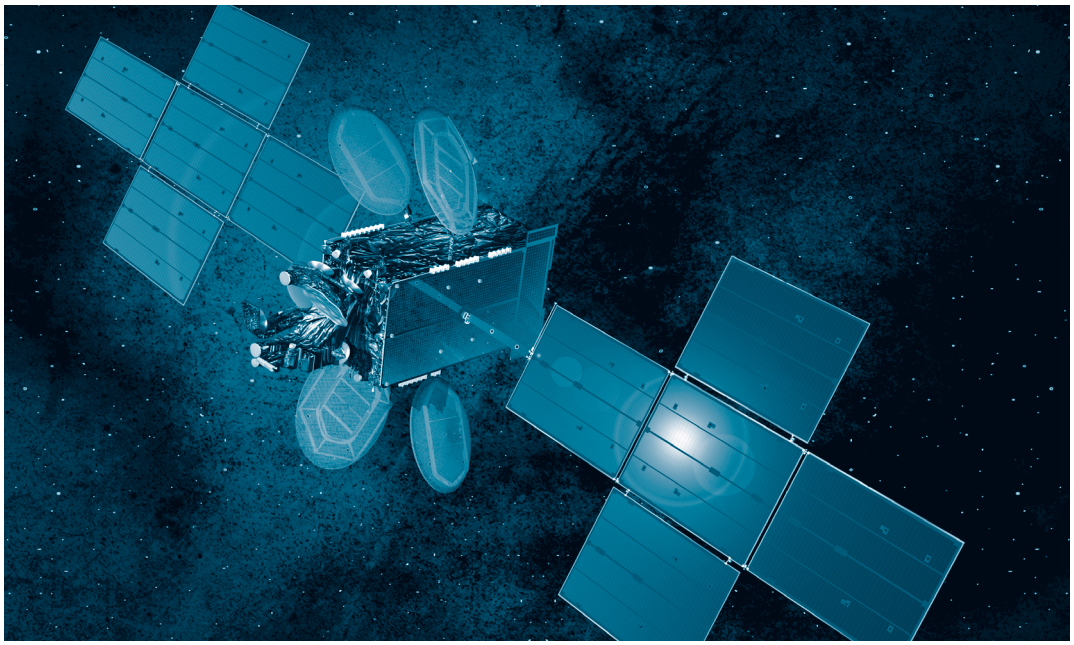
Standard Ariane 5 trajectory for geostationary transfer orbit



5. The Ariane 5-ECA (Industrial prime contractor: ASTRIUM SpaceTransportation)



6. The INTELSAT 17 satellite



Customer	**INTELSAT**	
Prime contractor	*SPACE SYSTEMS LORAL*	
Mission	*Telecommunications satellite*	
Mass	*Total mass at lift-off*	*5 540 kg*
	Dry mass	*2 393 kg*
Stabilization	*3 axis stabilized*	
Dimensions	*7.7 x 2.7 x 3.4 m*	
Span in orbit	*26.1 m*	
Platform	*LS 1300 OMEGA BUS*	
Payload	*25 Ku-band transponders and 24 C-band transponders*	
On-board power	*12.4 kW (end of life)*	
Life time	*18 years*	
Orbital position	*66° East*	
Coverage area	*Europe, Africa, Middle East, India*	

Press Contact

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7. The HYLAS 1 satellite

Customer	***AVANTI Communications***	
Prime contractor	*ASTRIUM and ISRO*	
Mission	*Broadband services*	
Mass	*Total mass at lift-off*	*2 570 kg*
	Dry mass	*1 125 kg*
Stabilization	*3 axis stabilized*	
Dimensions	*2.5 x 1.6 x 1.5 m*	
Span in orbit	*36 m*	
Platform	*I-2 K Bus*	
Payload	*8 Ka-band transponders and 2 Ku-band transponders*	
On-board power	*3200 W (end of life)*	
Life time	*15 years*	
Orbital position	*33.5° West*	
Coverage area	*Europe*	

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Appendix 1. Arianespace INTELSAT 17 & HYLAS 1 launch key personnel

In charge of the launch campaign			
Mission Director	*(CM)*	*Thierry WILMART*	*ARIANESPACE*
In charge of the launch service contract			
Program Director INTELSAT 17	*(CP1)*	*Luca CHIECCHO*	*ARIANESPACE*
Program Director HYLAS 1	*(CP2)*	*Christophe BARDOU*	*ARIANESPACE*
In charge of INTELSAT 17 satellite			
Satellite Mission Director	*(DMS)*	*Todd SCHILB*	*INTELSAT*
Satellite Program Manager	*(CPS)*	*Grant GOULD*	*SSL*
Satellite Preparation Manager	*(RPS)*	*Frank BRYAN*	*SSL*
In charge of HYLAS 1 satellite			
Satellite Mission Director	*(DMS)*	*J. COOKE*	*AVANTI*
Satellite Program Manager	*(CPS)*	*Michel BAROUD*	*ASTRIUM*
Satellite Program Manager	*(CPS)*	*Y.K. SINGHAL*	*ISRO*
Satellite Preparation Manager	*(RPS)*	*S. SUNDARAM*	*ISRO*
In charge of the launch vehicle			
Launch Site Operations Manager	*(COEL)*	*André SICART*	*ARIANESPACE*
Ariane Production Project Manager	*(CPAP)*	*Didier AUBIN*	*ARIANESPACE*
Launcher Production Quality Manager	*(RQLP)*	*Maël MATTOX*	*ARIANESPACE*
Launch Campaign Quality Manager	*(CQCL)*	*Véronique DELON*	*ARIANESPACE*
In charge of the Guiana Space Center (CSG)			
Range Operations Manager	*(DDO)*	*Bruno GILLES*	*CNES/CSG*
Range Operations Deputy	*(DDO/A)*	*Thierry VALLEE*	*CNES/CSG*

Appendix 2. Launch environment conditions

Acceptable wind speed limits at lift-off range from between 7.5 m/s to 9.5 m/s according to the wind direction. The most critical is a northerly wind. For safety reasons, the wind's speed on the ground (Kourou), and at a high altitude (between 10,000 and 20,000 m) is also taken into account.

Appendix 3. The synchronized sequence

The synchronized sequence starts 7 mn beforre ignition (T-0), it is primarily designed to perform the final operations on the launcher prior to launch, along with the ultimate checks needed following switchover to flight configuration. As its name indicates, it is fully automatic, and is performed concurrently by the onboard computer and by two reduntant computers at the ELA 3 launch complex until T-4 seconds.

The computers command the final electrical operations (startup of the flight program, servocontrols, switching from ground power supply to onboard batteries, etc.) and associated checks. They also place the propellant and fluid systems in flight configuration and perform associated checks. In addition, it handles the final ground system configurations, namely:

- Startup of water injection in the flame trenches and jet guide (T-30 sec).
- Hydrogen aspiration for chilldown of the Vulcain engine in the jet guide (T-18 sec).
- Burnoff of hydrogen used for chilldown (T-5.5 sec).

At T-4 seconds, the onboard computer takes over control of final engine startup and lift-off operations:

- It starts the ignition sequence for the Vulcain main stage engine (T-0).
- It checks engine operation (from T+4.5 to T+7.3 sec).
- It commands ignition of the solid boosters for immediate lift-off at T+7.3 seconds.

Any shutdown of the synchronized sequence after T-7 mn automatically places the launcher back in its T-7 min configuration.

Appendix 4. Arianespace and the Guiana Space Center

Arianespace was founded in 1980 as the world's first launch Service & Solutions company. Today, Arianespace has 24 shareholders from ten European countries (including French space agency CNES with 34%, EADS with 30%, and all European companies participating in the construction of Ariane launchers).
Since the outset, Arianespace has signed more than 300 launch contracts and launched 285 satellites. More than two-thirds of the commercial satellites now in service worldwide were launched by Arianespace.
The company posted sales of 1046 million euros in 2009.
At January 1, 2010, Arianespace had 323 employees, working at the company's headquarters in Evry (near Paris), the Guiana Space Center in French Guiana, where the Ariane, Soyuz and Vega launch pads are located, and offices in Washington, D.C., Tokyo and Singapore.
Arianespace offers launch Service & Solutions to satellite operators from around the world, including private companies and government agencies. These Service & Solutions call on three launch vehicles:
- The Ariane 5 heavy launcher, operated from the Guiana Space Center in Kourou, French Guiana.
- The Soyuz medium launcher. Currently in operation at the Baikonur Cosmodrome in Kazakhstan under the responsibility of Starsem, a Euro-Russian subsidiary of Arianespace, it will be launched from the Guiana Space Center starting in 2011.
- The Vega light launcher, to be launched from the Guiana Space Center starting in 2011.

Arianespace has also signed a mutual backup agreement with Boeing Launch Services and Mitsubishi Heavy Industries, through an entity called the Launch Services Alliance. This arrangement guarantees that customers' payloads will be launched in case the chosen launcher is unavailable for technical reasons.
With its family of launchers and this backup agreement, Arianespace won over half of the commercial launch contracts up for bid worldwide in the last two years. Arianespace now has a backlog of more than 40 satellites to be launched.

The Guiana Space Center: Europe's Spaceport
For over 30 years, the Guiana Space Center (CSG), Europe's Spaceport in French Guiana, has offered a complete array of facilities for rocket launches.
It mainly comprises the following:
- CNES/CSG technical center, including various resources and facilities that are critical to launch base operations, such as radars, telecom network, weather station, receiving sites for launcher telemetry, etc.
- Payload processing facilities (ECPU), in particular the S5 facility.
- Ariane launch complexes (ELA), comprising the launch zone and launcher integration buildings.
- Various industrial facilities, including those operated by Regulus, Europropulsion, Air Liquide Spacial Guyane and EADS, which contribute to the production of Ariane 5 elements. A total of 40 European manufacturers and local companies are involved in operations.

The Guiana Space Center is preparing to welcome two new launch vehicles, Soyuz and Vega. The Soyuz launch complex (ELS) and the Vega launch complex (SLV) are now under construction.
Europe's commitment to independent access to space is based on actions by three key players: the European Space Agency (ESA), French space agency CNES and Arianespace.
ESA has helped change the role of the Guiana Space Center, in particular by funding the construction of the launch complexes, payload processing buildings and associated facilities. Initially used for the French space program, the Guiana Space Center has gradually become Europe's own spaceport, according to the terms of an agreement between ESA and the french government.
To ensure that the Spaceport is available for its programs, ESA takes charge of the lion's share of CNES/CSG fixed expenses, and also helps finance the fixed costs for the ELA launch complexes.
French space agency CNES plays several roles at the Space Center.
- It designs all infrastructures and, on behalf of the French government, is responsible for safety and security.
- It provides the resources needed to prepare the satellites and launcher for missions.

Whether during tests or actual launches, CNES is also responsible for overall coordination of operations. It collects and processes all data transmitted from the launcher via a network of receiving stations, to track Ariane rockets throughout their trajectory.
In French Guiana, Arianespace is the contracting authority in charge of operating the family of three launchers, Ariane, Soyuz and Vega.
Arianespace supervises the integration and functional checks of the Ariane launcher, built by EADS Astrium as production prime contractor, in the Launcher Integration Building (BIL). It then carries out acceptance tests of the launcher at the same time as satellite preparations in the Payload Preparation Complex (EPCU), operated by the Guiana Space Center (CSG). Arianespace next oversees final assembly of the launcher and integration of satellites in the Final Assembly Building (BAF), followed by transfer of the launcher to Launch Zone No. 3 (ZL3), and then final countdown and liftoff from Launch Complex No. 3 (CDL3).
Arianespace has created a top-flight team and array of technical resources to get launchers and satellites ready for their missions. Building on this unrivalled expertise and outstanding local facilities, Arianespace is now the undisputed benchmark in the global launch services market.