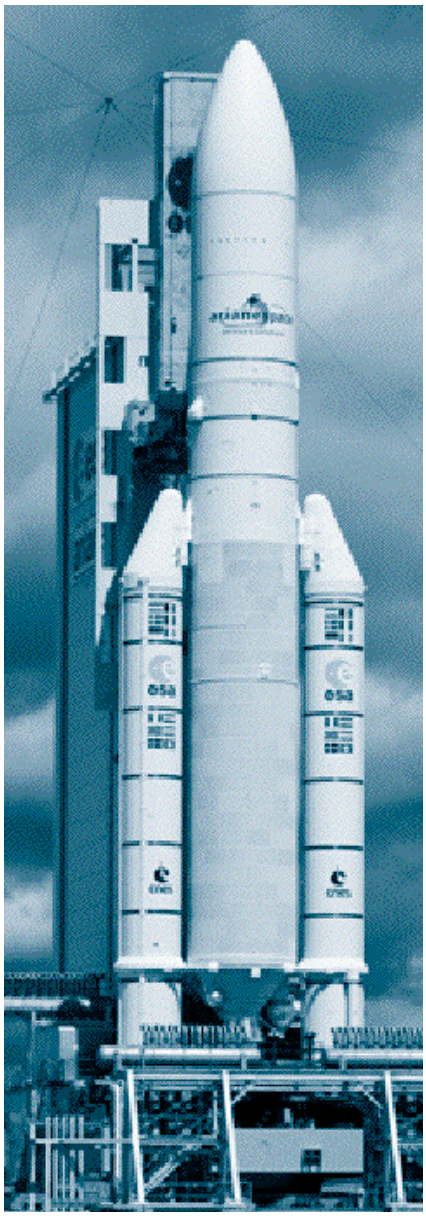
LAUNCHING TWO DIRECT BROADCAST TV SATELLITES

For its sixth launch of the year, Arianespace will orbit two direct broadcast TV satellites: NSS-12 for the operator SES World Skies, a subsidiary of SES, and THOR 6 for Telenor Satellite Broadcasting AS, a subsidiary of the Norwegian mobile operator, Telenor.



The choice of Arianespace by leading space communications operators and manufacturers is clear international recognition of the company's excellence in launch services.

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

Arianespace and SES have developed an exceptional relationship over the last two decades. NSS-12 will be the 32nd satellite from the SES group of companies (Euronext Paris and Luxembourg Bourse: SESG) to have opted for an Ariane launch.

NSS-12 was built by Space Systems/Loral (SSL) using an SS/L 1300 platform, and will weigh about 5,700 kg at liftoff. Fitted with 48 active Ku-band transponders and 40 C-band transponders, this powerful satellite will provide direct-to-home (DTH) television broadcast services in Europe, the Middle East, Africa, Asia and Australia.
NSS-12 offers a design life of at least 15 years, and will be positioned in geostationary orbit at 57 degrees East.

THOR 6 will be the first satellite launched by Arianespace for Telenor Satellite Broadcasting AS, a subsidiary of the Norwegian operator Telenor.

Built by Thales Alenia Space using a Spacebus 4000B2 platform, THOR 6 will weigh about 3,000 kg at liftoff. THOR 6 is equipped with 36 Ku-band transponders and will be positioned at 1 degree West, providing DTH services to the Nordic region and throughout Central and Eastern Europe. It has a design life of about 15 years.

The Ariane 5 launcher's fairing will bear the inscription "Forum Ariane Lampoldshausen", as part of an initiative to promote the Community of Ariane Cities. The German city of Lampoldshausen will head this association in 2009.

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

1. Mission profile

The 192nd Ariane mission will place two direct broadcast satellites into geostationary transfer orbit: NSS-12 for the operator SES World Skies, a subsidiary of SES, and THOR 6 for Telenor Satellite Broadcasting AS, a subsidiary of the Norwegian mobile operator, Telenor.

This will be the 48th Ariane 5 launch.

The launcher will be carrying a total payload of 9,515 kg, including 8,705 kg for the NSS-12 and THOR 6 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	***6° degrees***

The lift-off is scheduled on the night of October 29, 2009 as soon as possible within the following launch window:

Launch opportunity

	Universal time (GMT)	*Paris time*	*Kourou time*	*Washington time*
Between	*8:00 pm*	*9:00 pm*	*5:00 pm*	*4:00 pm*
and	*9:40 pm*	*10:40 Pm*	*6:40 pm*	*5:40 pm*
on	*October 29, 2009*	*October 29, 2009*	*October 29, 2009*	*October 29, 2009*

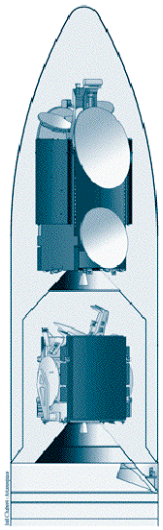
Configuration of Ariane payload

The NSS-12 satellite was built by Space Systems/Loral in Palo Alto, California for operator SES World Skies.

Orbital position : 57° East

THOR 6 was built by Thales Alenia Space in Cannes, France, for operator Telenor Satellite Broadcasting AS.

Orbital position : 1° West



2. Range operations campaign: ARIANE 5 - NSS-12 & THOR 6

Satellites and launch vehicle campaign calendar

Ariane activities	Dates	Satellites activities
Campaign start review	September 4, 2009	
EPC Erection	September 4, 2009	
EAP transfer and positionning		September 7, 2009
Integration EPC/EAP	September 8, 2009	
ESC-A and VEB Erection	September 10, 2009	
	September 26, 2009	Arrival in Kourou of NSS-12 and beginning of preparation campaign in building S5 C
	September 28, 2009	Arrival in Kourou of THOR 6 and beginning of preparation campaign in building S5 C
Roll-out from BIL to BAF	October 9, 2009	
	October 10-13, 2009	THOR 6 filling operations in S5 B building
	October 12-14, 2009	NSS-12 filling operations in S5 A building
	October 15, 2009	NSS-12 integration on adaptor (ACU)

Satellites and launch vehicle campaign final calendar

J-10	Friday, October 16	NSS-12 transfer to Final Assembly Building (BAF)
J-9	Saturday, October17	NSS-12 integration on Sylda and THOR 6 integration on adaptor
J-8	Monday, October 19	Fairing integration on Sylda - THOR 6 transfer to Final Assembly Building (BAF)
J-7	Tuesday, October 20	THOR 6 integration on launcher
J-6	Wednesday, October 21	Upper composite integration with NSS-12 on launcher
J-5	Thursday, October 22	ESC-A final preparations and payloads control
J-4	Friday, October 23	Launch rehearsal
J-3	Monday, October 26	Arming of launch vehicle
J-2	Tuesday, October 27	Arming of launch vehicle Launch readiness review (RAL) and final preparation of launcher
J-1	Wednesday, October 28	Roll-out from BAF to Launch Area (ZL), launch vehicle connections and filling of the EPC liquid Helium sphere
J-0	Thursday, October 29	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*

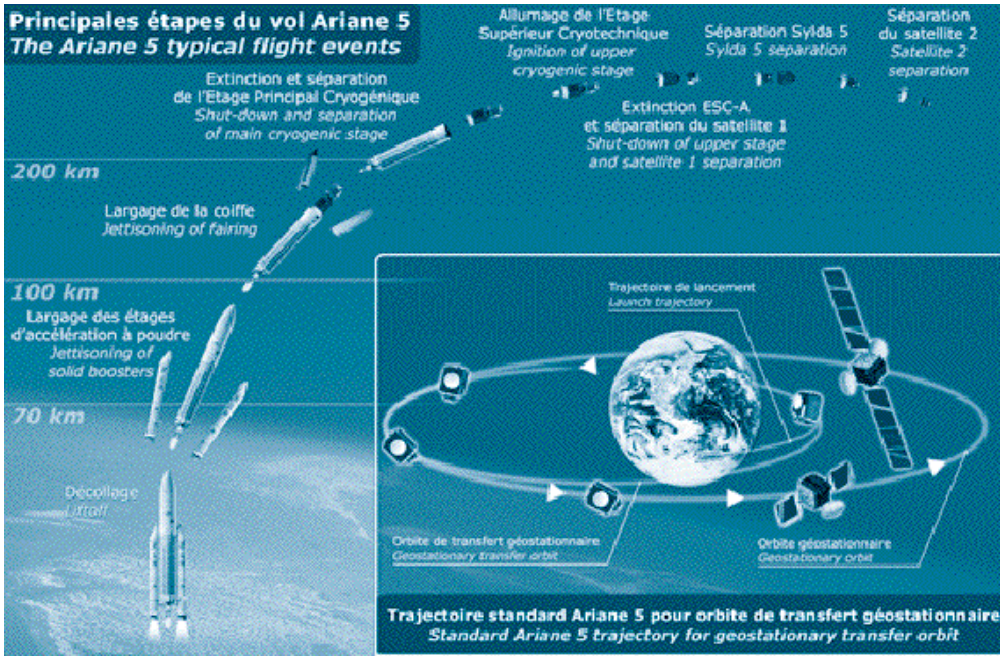
HO	*Ignition of the cryogenic main stage engine (EPC)*		*ALT (km)*	*V. rel. (m/s)*
	+ 7,0 s	*Ignition of solid boosters*	*0*	*0*
	+ 7,3 s	*Liftoff*	*0*	*0*
	+ 12,5 s	*End of vertical climb and beginning of pitch rotation (10 seconds duration)*	*0.087*	*36*
	+ 17 s	*Beginning of roll manoeuvre*	*0.334*	*74*
+ 2 mn	*21 s*	*Jettisoning of solid boosters*	*67.9*	*1991*
+ 3 mn	*09 s*	*Jettisoning of fairing*	*106.3*	*2197*
+ 7 mn	*01 s*	*Acquisition by Natal tracking station*	*170.5*	*5641*
+ 8 mn	*52 s*	*Shut-down of main cryogenic stage*	*168.5*	*6888*
+ 8 mn	*58 s*	*Separation of main cryogenic stage*	*168.6*	*6915*
+ 9 mn	*02 s*	*Ignition of upper cryogenic stage (ESC-A)*	*168.6*	*6917*
+ 13 mn	*40 s*	*Acquisition by Ascension tracking station*	*155.6*	*7604*
+ 18 mn	*24 s*	*Acquisition by Libreville tracking station*	*186*	*8383*
+ 23 mn	*07 s*	*Acquisition by Malindi tracking station*	*427*	*9145*
+ 24 mn	*45 s*	*Shut-down of ESC-A / Injection*	*600.3*	*9403*
+ 26 mn	*36 s*	*Separation of NSS-12 satellite*	*859*	*9183*
+ 29 mn	*03 s*	*Separation of Sylda 5*	*1279*	*8850*
+ 31 mn	*14 s*	*Separation of THOR 6 satellite*	*1717*	*8528*
+ 49 mn	*28 s*	*End of Arianespace Flight mission*	*6235*	*6155*

4. Flight trajectory of NSS-12 & THOR 6

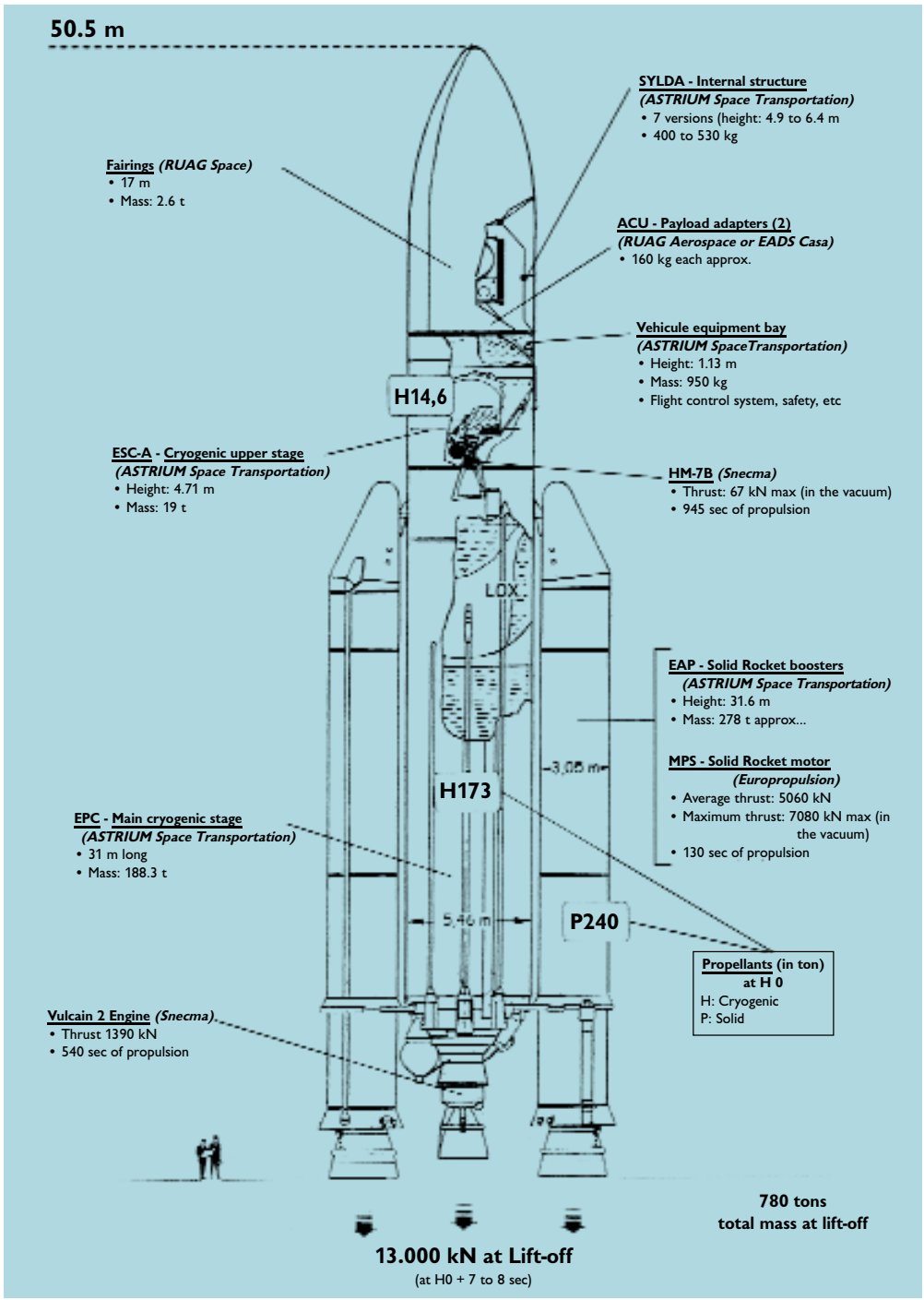
The launcher's attitude and trajectory are totally controlled by the two onboard computers, located in the Ariane 5 vehicle equipment bay (VEB).
7.05 seconds after ignition of the main stage cryogenic engine at T-0, the two solid-propellant boosters are ignited, enabling liftoff. The launcher first climbs 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 9403 meters/second, and will be at an altitude of about 600 kilometers.
The fairing protecting the NSS-12 & THOR 6 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)

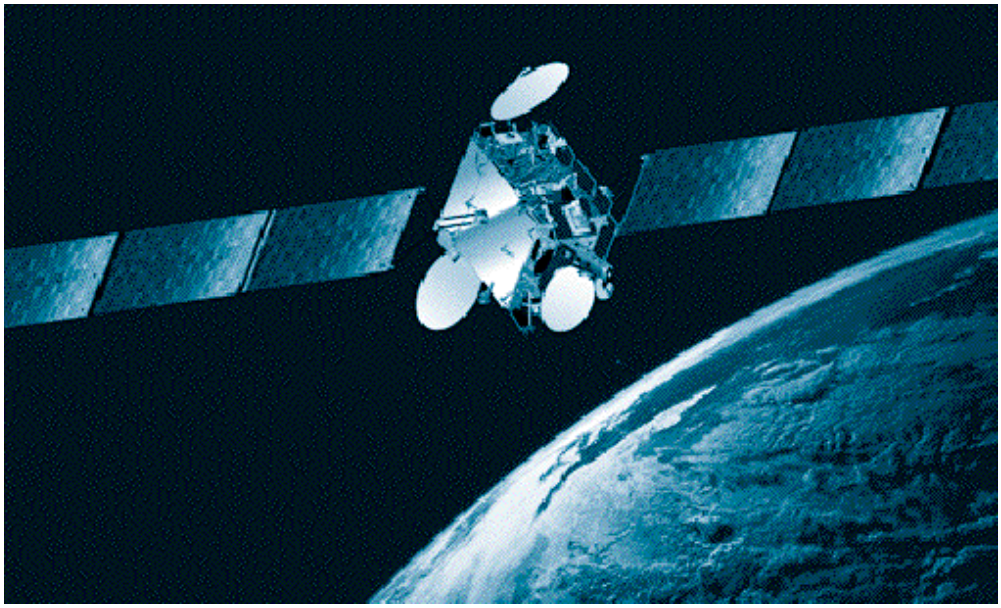


6. The NSS-12 satellite

Customer	**SES WORLD SKIES**
Prime contractor	*Space Systems Loral*
Mission	*Telecommunications and Direct-to home (DTH) television services*
Mass	*Total mass at lift-off 5 622 kg*
Stabilization	*3 axis stabilized*
Dimensions	*7.6 x 2.9 x 3.6 m*
Span in orbit	*32,5 m*
Platform	*SS/L 1300*
Payload	*48 Ku-band transponders and 40 C-band transponders*
On-board power	*14.2 kW (end of life)*
Life time	*15 years*
Orbital position	*57° East*
Coverage area	*Europe, Africa, Middle East, Asia and Australia*

Press Contact
Yves FELTES
Vice President Media Relations
SES & SES WORLD SKIES
Chateau de Betzdorf
Tel : +352-710 72 53 10

7. The THOR 6 satellite



Customer	**Telenor Satellite Broadcasting AS**
Prime contractor	*Thales Alenia Space*
Mission	*Direct to home television services*
Mass	*Total mass at lift-off 3,049 kg*
Stabilization	*3 axis*
Dimensions	*2,8 x 1,8 x 2,3 m*
Span in orbit	*29.6 m*
Platform	*Spacebus 4000 B2*
Payload	*36 Ku-band transponders*
On-board power	*6,395 W (end of life, Equinox)*
Life time	*15 years*
Orbital position	*1° West*
Coverage	*Nordic region and Central Eastern Europe*

Press Contact
Natasha KEECH
Director, Marketing and Communication
Telenor Satellite Broadcasting AS
Tel + 44 7740 450 853

Appendix 1. Arianespace NSS-12 & THOR 6 launch key personnel

In charge of the launch campaign			
Mission Director	*(CM)*	*Philippe ROLAND*	*ARIANESPACE*
In charge of the launch service contract			
Ariane NSS-12 Payload Manager	*(RCUA)*	*Christophe BARDOU*	*ARIANESPACE*
Ariane THOR 6 Payload Manager	*(RCUA)*	*Veronique LOISEL*	*ARIANESPACE*
In charge of NSS-12 satellite			
Satellite Mission Director	*(DMS)*	*Rick STARKOVS*	*SES*
Satellite Mission Deputy Director	*(DMS/A)*	*Dennis HUYLER*	*SES*
Satellite Program Manager	*(CPS)*	*Grant GOULD*	*SS/LORAL*
Satellite Preparation Manager	*(RPS)*	*Mohammed WAHDY*	*SS/LORAL*
In charge of THOR 6 satellite			
Satellite Mission Director	*(DMS)*	*Peter OLSEN*	*TELENOR*
Satellite Mission Deputy Director	*(DMS/A)*	*Oddveig TRETTERUD*	*TELENOR*
Satellite Program Manager	*(CPS)*	*Marc ATTANASIO*	*THALES*
Satellite Preparation Manager	*(RPS)*	*Pierre GABILLET*	*THALES*
In charge of the launch vehicle			
Launch Site Operations Manager	*(COEL)*	*Christian LARDOT*	*ARIANESPACE*
Ariane Production Project Manager	*(CPAP)*	*Roland LAGIER*	*ARIANESPACE*
In charge of the Guiana Space Center (CSG)			
Range Operations Manager	*(DDO)*	*Antoine GUILLAUME-PEPIN*	*CNES/CSG*
Range Operations Deputy	*(DDO/A)*	*Emmanuel SANCHEZ*	*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 23 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 274 satellites. More than two-thirds of the commercial satellites now in service worldwide were launched by Arianespace.
The company posted sales of 955,7 million euros in 2008, and stayed in the black for the sixth year in a row.
At January 1, 2009, Arianespace had 309 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 in 2010.
- The Vega light launcher, to be launched from the Guiana Space Center starting in 2010.

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 bas operation, 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.