A graphic for the Delta IV DSCS III B6 Media Kit. At the top left, there are four grey squares and a cyan arrow pointing left with the word "SELECT" next to it. The word "DELTA" is written in large, white, serif font. To its right is a red digital timer showing "00:00:00". Below the timer is a logo for "DSCS III A3" featuring a satellite and the U.S. Air Force emblem. The text "DSCS III B6" is written in large, yellow, serif font. To the right of this text is a blue triangle with a white border containing the number "IV". At the bottom right is the Boeing logo. The background is dark with a blue grid and a bright orange and blue streak representing a rocket launch.

DELTA

00:00:00

DSCS III A3
U.S. AIR FORCE

DSCS III B6

IV

BOEING

Delta IV EELV DSCS III B6 Media Kit

This site requires a JavaScript-enabled browser and uses Flash for both animation and navigation. To get the full benefit of the [Boeing Web Site](#), you will need to download and install the latest version of the [Flash player](#), then return to view the [Delta IV EELV DSCS III B6 site](#).

You can still view a non-Flash web page by clicking on the links below.

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VIDEO



Delta IV First Launch

200 56 28



DSCS III A3 Launch

200



.rpm files require [Realplayer plug-in](#) installed for viewing



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PHOTO GALLERY



Delta IV EELV photos



DSCS III B6 is the final installment for the U.S. Air Force's Defense Satellite Communications System program. The Air Force Space Command operates 10 Phase III DSCS satellites that provide defense officials and battlefield commanders with secure voice and high-rate data communications.



The first stage of the Delta IV Medium vehicle that will be used for the U.S. Air Force's DSCS III B6 mission is raised at the launch pad at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The Delta launch team uses the Fixed Pad Erector to raise each booster on the launch table. The Mobile Service Tower is seen in the background.
Photo: Mike Woolley



The Delta IV Medium launch vehicle, seen prior to its mission to deploy DSCS III B6 for the U.S. Air Force, stands ready at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The launch pad's Mobile Service Tower protects the rocket until launch day, when the launch team rolls the Tower back hours before launch. The Delta IV Medium configuration features the Boeing-built RS-68 main engine, Common Booster Core and 4-meter composite payload fairing.
Photo: Mike Woolley



DSCS III B6, the final installment for the U.S. Air Force's Defense Satellite Communications System, makes its journey up to the top of the Mobile Service Tower at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The spacecraft is inside the payload fairing, shown, which sports the mission logo on the outside. DSCS III B6 will be launched aboard a Delta IV Medium launch vehicle.
Photo: Mike Woolley



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DSCS III B6 Spacecraft



DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS) — DSCS III B6 is the final installment for the U.S. Air Force's Defense Satellite Communications System program. The Air Force Space Command operates 10 Phase III DSCS satellites that provide defense officials and battlefield commanders with secure voice and high-rate data communications.

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Delta IV Raised Into Position



DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS) — The first stage of the Delta IV

Medium vehicle that will be used for the U.S. Air Force's DSCS III B6 mission is raised at the launch pad at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The Delta launch team uses the Fixed Pad Erector to raise each booster on the launch table. The Mobile Service Tower is seen in the background.
Photo: Mike Woolley



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Mobile Service Tower Enshrouds Delta IV



DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS) — The Delta IV Medium launch

vehicle, seen prior to its mission to deploy DSCS III B6 for the U.S. Air Force, stands ready at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The launch pad's Mobile Service Tower protects the rocket until launch day, when the launch team rolls the Tower back hours before launch. The Delta IV Medium configuration features the Boeing-built RS-68 main engine, Common Booster Core and 4-meter composite payload fairing.
Photo: Mike Woolley



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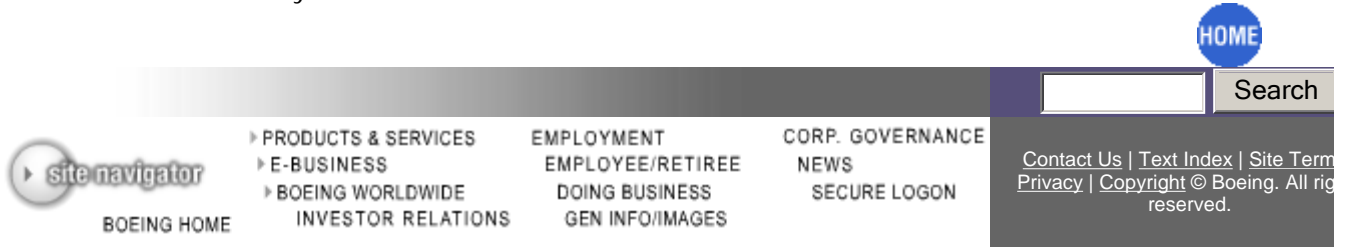
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DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS) — DSCS III B6, the final installment for the U.S. Air Force's Defense Satellite Communications System, makes its journey up to the top of the Mobile Service Tower at Space Launch Complex 37B, Cape Canaveral Air Force Station, Fla. The spacecraft is inside the payload fairing, shown, which sports the mission logo on the outside. DSCS III B6 will be launched aboard a Delta IV Medium launch vehicle.

Photo: Mike Woolley



The navigation bar features a 'HOME' button in a blue circle at the top right. Below it is a search box with a 'Search' button. On the left, there is a 'site navigator' icon and a 'BOEING HOME' link. The main navigation menu is organized into three columns: 'PRODUCTS & SERVICES' (with sub-links for E-BUSINESS and BOEING WORLDWIDE), 'EMPLOYMENT' (with sub-links for EMPLOYEE/RETIREE, DOING BUSINESS, and GEN INFO/IMAGES), and 'CORP. GOVERNANCE' (with sub-links for NEWS and SECURE LOGON). A footer area on the right contains links for 'Contact Us', 'Text Index', 'Site Terms', and 'Privacy', along with a copyright notice for Boeing.

DSCS Objectives

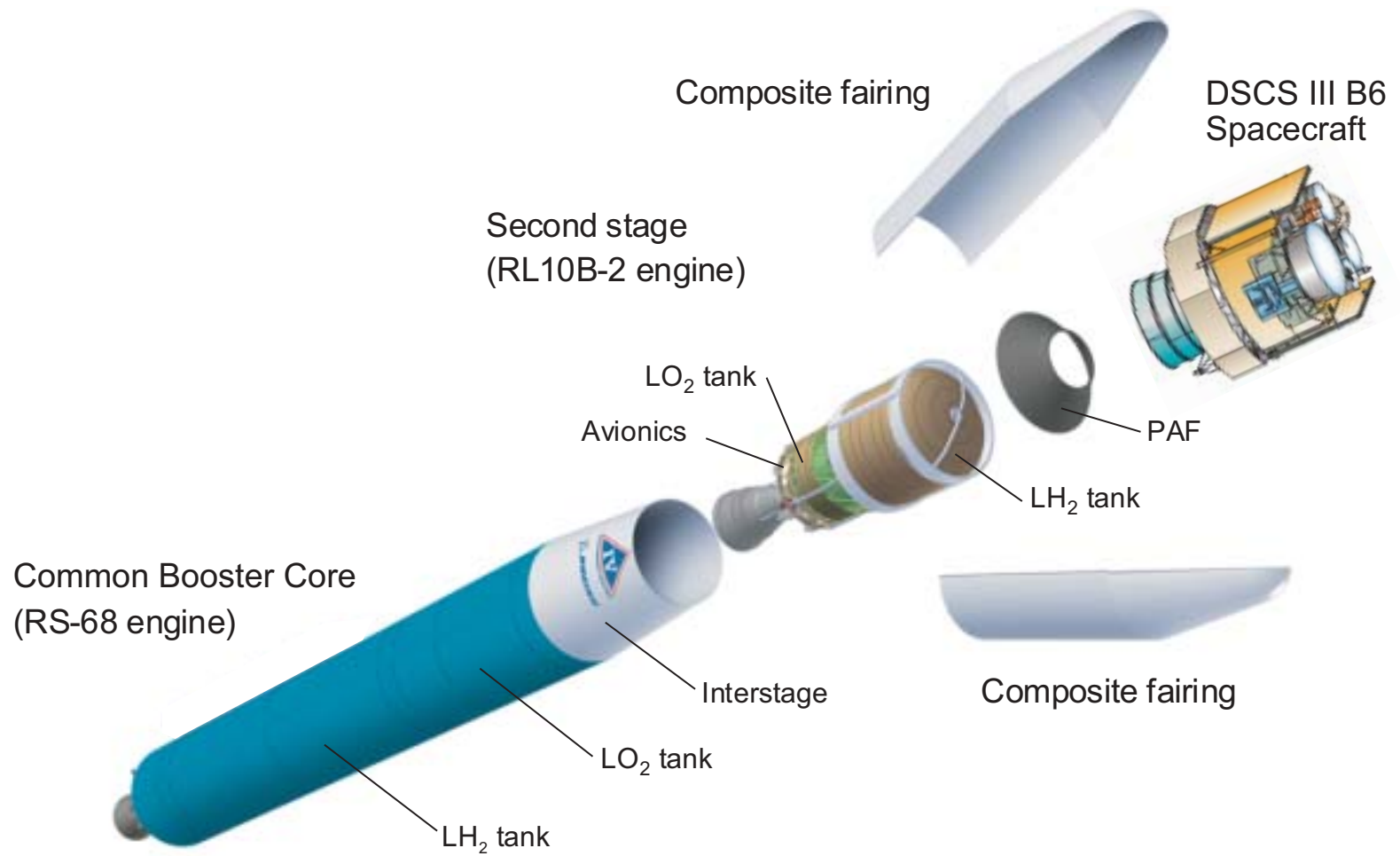
The third-generation DSCS Space Segment provides a robust anti-jam, nuclear hardened capability that supports Department of Defense (DoD) worldwide requirements, and White House and diplomatic communications

The system is used for high-priority communications such as the exchange of wartime information between defense officials and battlefield commanders

The system provides uninterrupted secure voice and high-data-rate communications to globally fixed and mobile DoD users, NATO, the United Kingdom, the Diplomatic Telecommunications Service, and the White House Communications Agency

Delta IV Medium Launch Vehicle

11.7-m (38.5-ft)-Long Fairing



DSCS III B6 Spacecraft

- Manufactured by Lockheed Martin Space Systems
- The separated spacecraft mass is approximately 6,025 lb
- The DSCS III B6 spacecraft carries:
 - Six independent Super High Frequency (SHF) transponders and one special-purpose single-channel transponder operating on both SHF and Ultra High Frequency
 - Three receive antennas (two Earth coverage horns, one steerable 61-beam nulling lens)
 - Five transmit antennas (two Earth coverage horns, two steerable 19-beam waveguide lens, one high-gain parabolic gimbaled dish)
- DSCS III B6 has a mission life of 10 years
- 1,700 W of onboard power at the beginning of life and 1,230 W at the end of life

Flight Mode Description

Boost-to-Park Orbit

- Delta IV Medium/DSCS III launch from Complex 37B at CCAFS
- Flight azimuth: 95 deg
- Direct flight azimuth mode employed (combined pitch/yaw)
- Boost trajectory designed to meet controllability, structural, and environmental constraints
 - Trajectory lofted to reduce propellant remaining at SECO-2, which increases separation pointing accuracy
- RS-68 begins to throttle down when the nominal axial acceleration (sensed) reaches 4.5 g's
 - The time duration to throttle from 102% to 57% is 5 sec
- Payload fairing is jettisoned ~10 sec after second-stage ignition
 - Free molecular heating remains well below the requirement thereafter
- Second-stage first burn places vehicle in a 100 x 216.7 nmi park orbit with an inclination of 29.20 deg at SECO-1
 - SECO-1 occurs in view of the Antigua tracking station

Sequence of Events

Boost-to-Park Orbit

Event	Time (mm:ss)	Time (sec)
Stage I Liftoff	00:00.0	00.0
Mach Number = 1.05	01:22.5	82.5
Maximum Dynamic Pressure (482 psf)	01:30.6	90.6
Initiate Booster Throttling	03:36.8	216.8
Booster Throttle at 57%	03:41.8	221.8
Main Engine Cutoff (MECO)	04:19.9	259.9
Stage I-II Separation	04:30.9	270.9
Begin Pre-Start Chilldown	04:37.4	277.4
Stage II Ignition	04:44.4	284.4
Jettison Fairing	04:54.5	294.5
First Cutoff—Stage II (SECO-1)	14:13.4	853.4

Note: All events based on nominal planning per Final Mission Analysis (FMA)

Flight Mode Description

Coast Through SC Separation

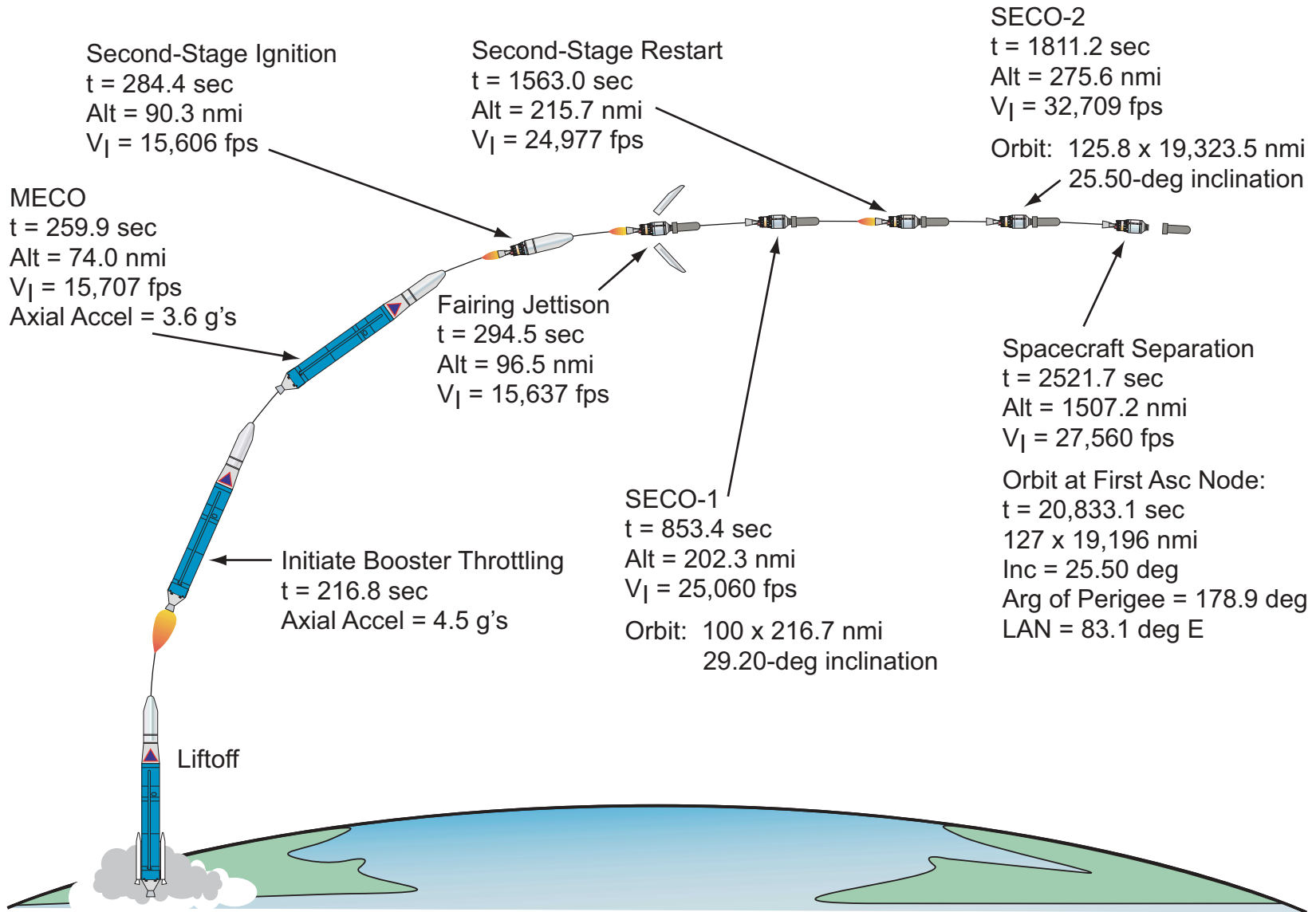
- Following SECO-1, coast guidance reorients the vehicle to the desired restart attitude
- Two to four hydrazine settling thrusters are on throughout the coast period
- Continuous vent system (CVS) is on from 2 sec after SECO-1 until 151 sec prior to restart ignition (begin repressurization)
- Second-stage restart occurs at 1563.0 sec within view of the Ascension tracking station
- SECO-2 occurs 248.1 sec after restart ignition when a 125.8 x 19,323.5 nmi orbit at 25.50-deg inclination is achieved
- Following SECO-2, coast guidance orients the vehicle to the required spacecraft separation attitude
 - Maneuver performed under zero thrust condition to allow the propellants to float freely and quench the hot tank walls
- A sequence of six roll rate steps is used to spin the vehicle to 4.6 rpm prior to spacecraft separation
 - Spacecraft separation occurs 710.5 sec after SECO-2, at required attitude and within view of Hartebeesthoek and Diego Garcia

Sequence of Events

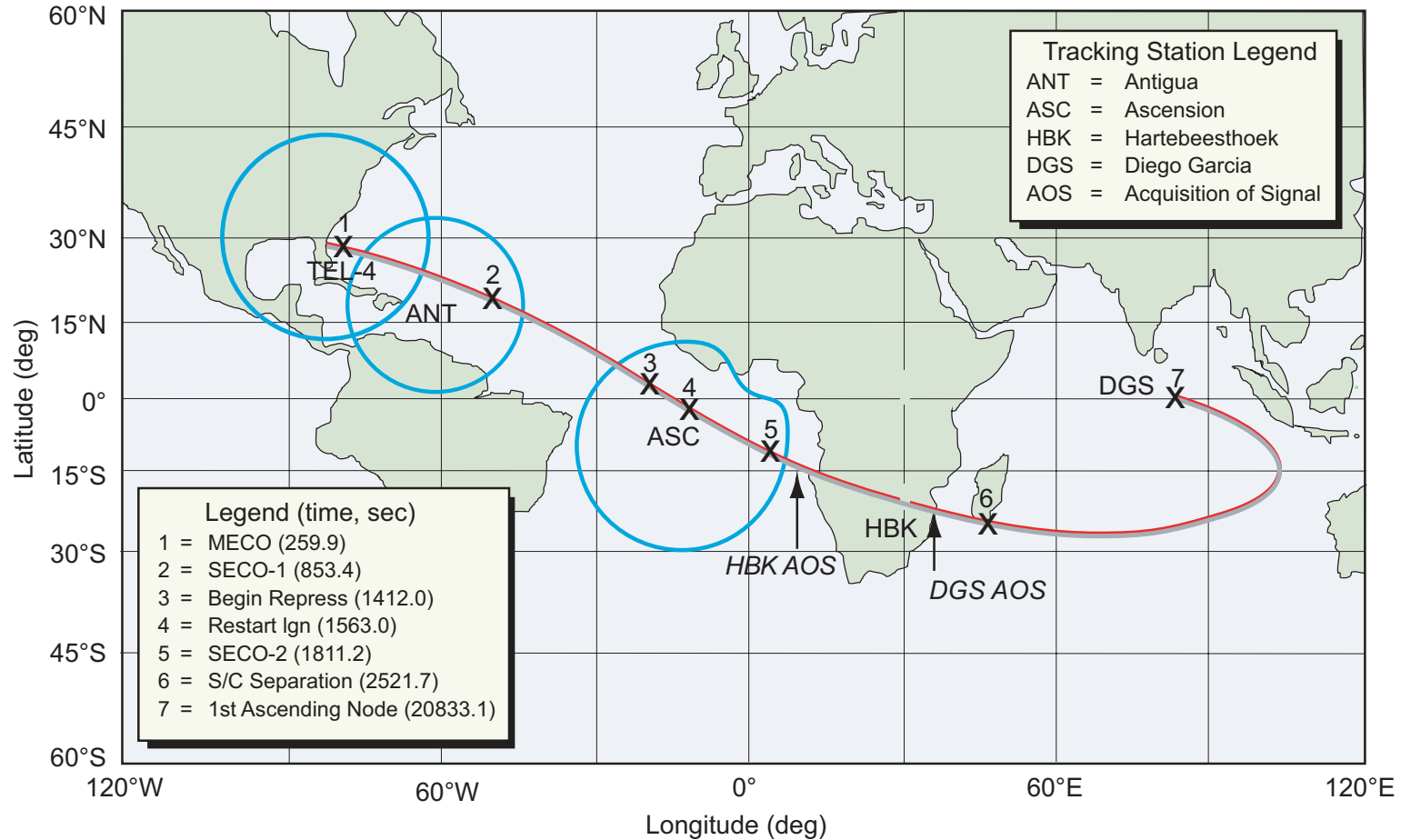
Coast Through SC Separation

Event	Time (hh:mm:ss)	Time (sec)
Begin Maneuver to Restart Attitude	00:14:43.4	883.4
End Maneuver to Restart Attitude	00:19:43.4	1183.4
First Restart – Stage II	00:26:03.0	1563.0
Begin Restart Burn Control Program	00:26:09.0	1569.0
End Restart Burn Control Program	00:28:56.1	1736.1
Second Cutoff – Stage II (SECO-2)	00:30:11.2	1811.2
Begin Separation Attitude Maneuver	00:30:41.2	1841.2
End Separation Attitude Maneuver	00:32:01.2	1921.2
Begin Spin-up/Two Settling Thrusters On	00:37:51.2	2271.2
Spacecraft Separation	00:42:01.7	2521.7
Spacecraft at First Ascending Node	05:47:13.1	20,833.1

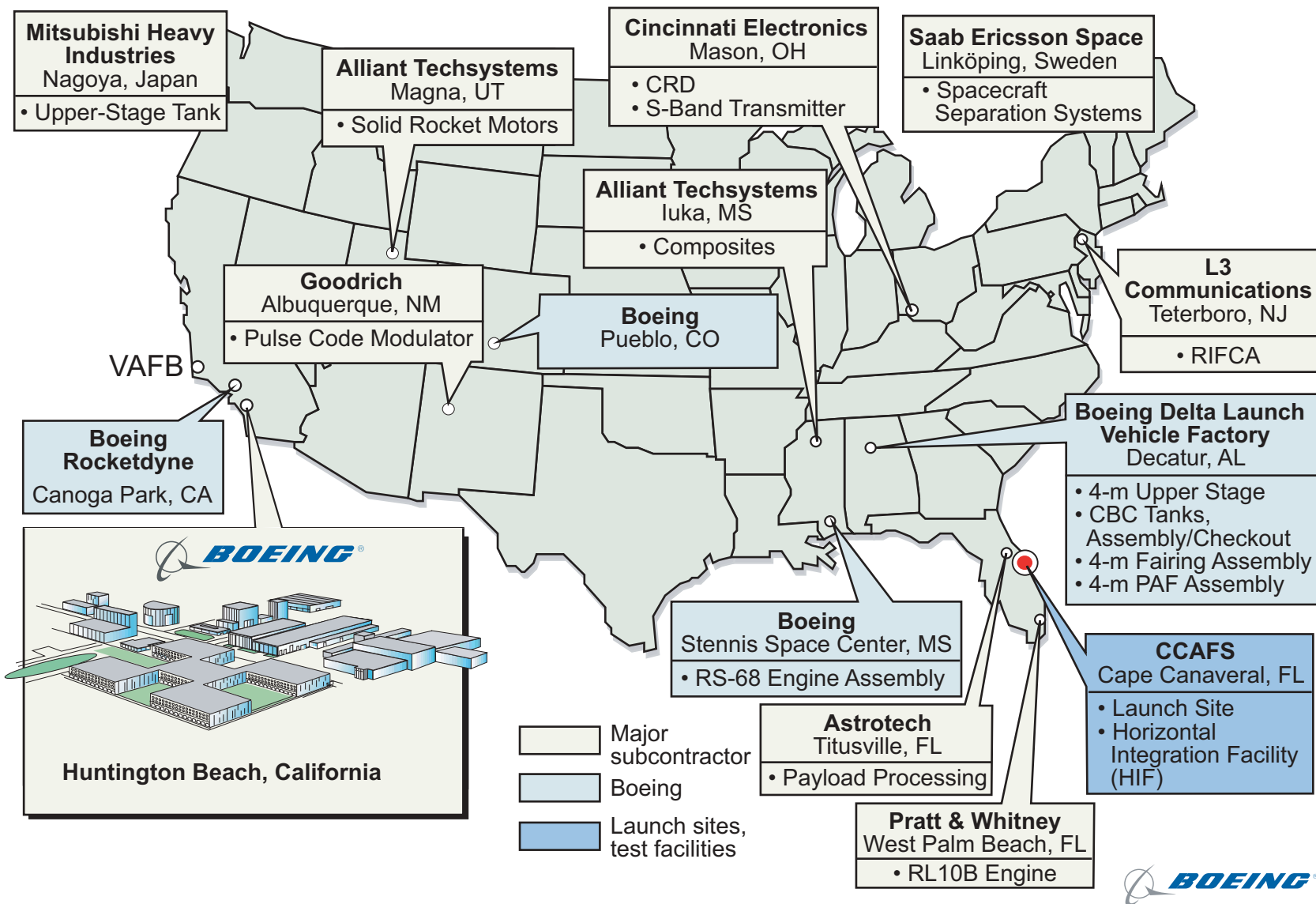
DSCS Flight Profile



DSCS Orbit Trace



Experienced and Capable Team



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DSCS III B6 Decal



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Boeing Delta IV DSCS III B6 Mission

Mission: DSCS (Defense Satellite Communications System) III B6

Date: August 28, 2003

Time: 7:13 p.m. – 8:30 p.m. EDT Launch Window

Launch Site: Space Launch Complex 37B
Cape Canaveral Air Force Station, Fla.

Customer: United States Air Force

Launch Vehicle: Boeing Delta IV Medium

Spacecraft Maker: Lockheed Martin Space Systems

Overview: DSCS III B6 is the final installment for the U.S. Air Force's Defense Satellite Communications System program. The Air Force Space Command operates 10 Phase III DSCS satellites that provide defense officials and battlefield commanders with secure voice and high rate data communications. DSCS III B6 will be deployed to a geosynchronous transfer orbit.

The Boeing Delta IV Medium features the Boeing Common Booster Core first stage; the Boeing Rocketdyne RS-68 main engine; the Pratt & Whitney RL10B-2 upper stage engine; and a four-meter composite payload fairing. The Delta IV family of expendable launch vehicles consists of five configurations: the Medium, three versions of the Medium+, and the Heavy.

###

Contact:
Boeing Communications: (714) 896-1301
Boeing Launch Hotline: (714) 896-4770
Boeing Delta Web site: www.boeing.com/delta



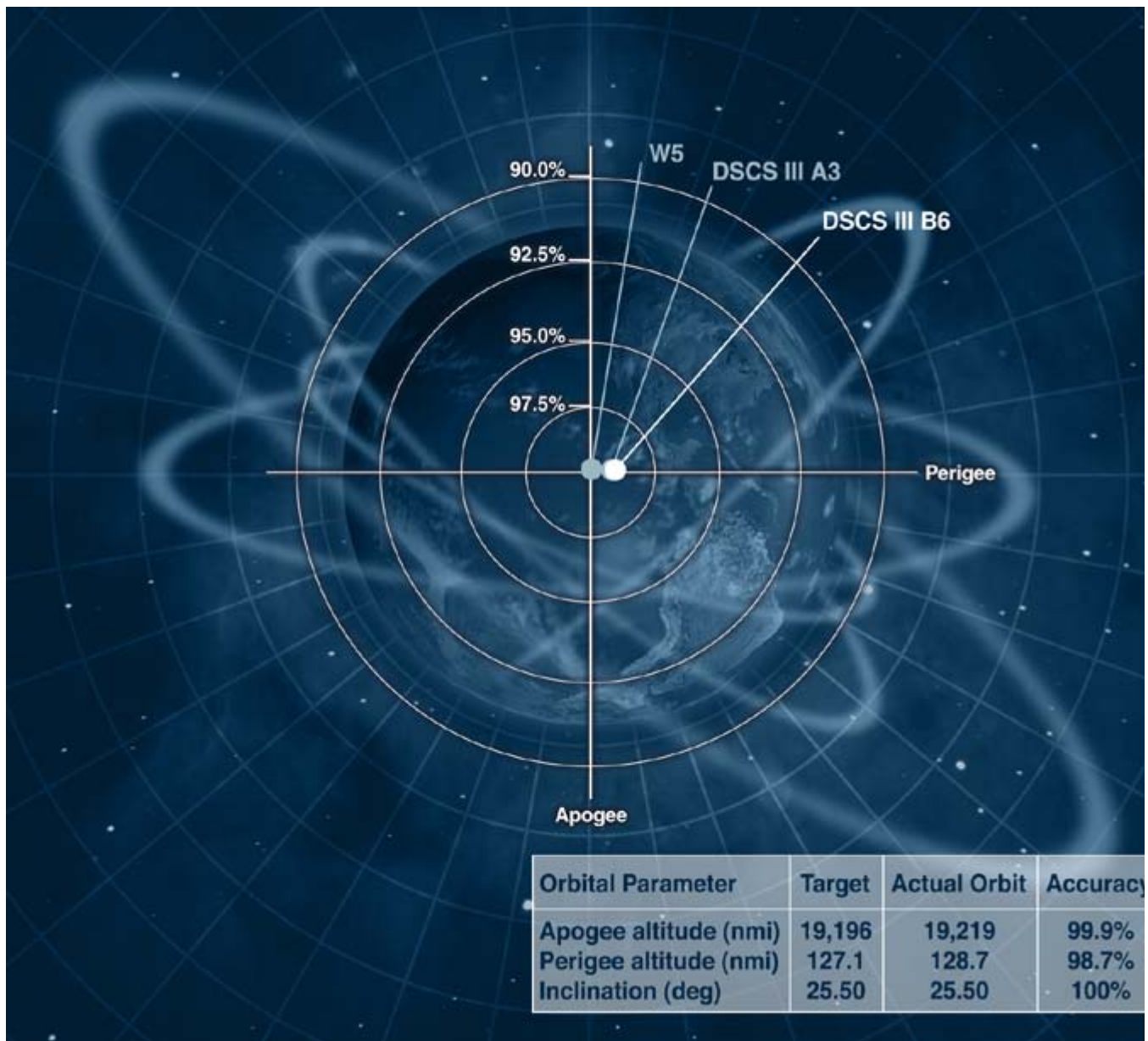
DSCS III B6 Launch Info

Results of the Launch:

On August 29, 2003, a Boeing Delta IV Medium rocket successfully delivered to space the DSCS III B6 communications satellite for the U.S. Air Force. This satellite will provide defense officials and battlefield commanders secure voice and high-data-rate communications, along with transmitting space operations and early warning data to various systems and users. This launch marks the final spacecraft for the Air Force's Defense Satellite Communications System (DSCS).

Results from initial data reviews show the orbital insertion of the DSCS III B6 satellite by the Delta IV Medium launch vehicle was right on target, well within the mission requirements and predicted 3-sigma accuracy. The apogee and perigee altitudes of the spacecraft after separation were within +23 and +1.6 nautical miles of target, respectively, and the orbit inclination angle was exactly as targeted. The robust performance of the launch system and accurate injection will contribute to the on-orbit lifetime of the satellite.





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[spacecraft integration](#) : [tower rollback](#) : [success](#)

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