



# NASA News

National Aeronautics and  
Space Administration

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**IMMEDIATE**

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## NASA TO LAUNCH WESTAR IV COMMUNICATIONS SATELLITE

NASA will launch the WESTAR IV communications spacecraft on a Delta 3910 launch vehicle from Complex 17A, Eastern Space and Missile Center, Cape Canaveral Air Force Station, Fla., no earlier than Feb. 25, at 6:28 p.m. EST.

Once in orbit, WESTAR IV joins three other Western Union satellites. WESTARS I and II were launched into geosynchronous orbit in 1974 and WESTAR III was placed in orbit in 1979. The Hughes-built WESTAR IV has a design life of 10 years and will relay voice, data, video and facsimile communications to the continental United States, Hawaii, Alaska, Puerto Rico and the Virgin Islands from a geosynchronous position of 99 degrees west longitude.

WESTAR I was positioned approximately on-line with San Antonio, Texas, at 99 degrees west longitude; WESTAR II is located on a line slightly west of San Francisco at 123.5 west longitude; and WESTAR III is positioned on-line with Baton Rouge, La., at 91 degrees west longitude. WESTAR I and II are expected to reach the end of their design life in 1983 and 1984 respectively.

February 4, 1982

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WESTAR IV and the planned WESTAR V, scheduled for launch in 1982, will relay communications traffic now carried on these two satellites.

The spacecraft uses a telescoping cylindrical solar panel and folding antenna for compactness during launch.

WESTAR IV will be double the size of WESTARS I, II and III, and it will have about four times the capacity. The satellite will be 274 centimeters (108 inches) in height in its stowed configuration and 684 cm (269 in.) in height when it is deployed in space. Diameter will be 216 cm (86 in.). It will weigh about 1,100 kilograms (2,425 pounds) in the transfer orbit after Payload Assist Module burnout and approximately 585 kg (1,290 lb.) in the geosynchronous orbit after the apogee kick motor has fired.

WESTAR IV carries 24 transponder channels, twice the number of existing WESTARS, develops 40 percent more transmitting power than most domestic communications satellites, and produces in excess of 800 watts of solar power.

NASA's Delta 3910 launch vehicle is 35 meters (116 feet) high and consists of a 2.4-m (8-ft.) first stage, powered by a Rocketdyne RS-27 liquid-fueled engine; nine Thiokol Castor IV strap-on solid motors; a 1.5-m (5-ft.) diameter second stage powered by a TRW TR-201 liquid fueled engine; and a 2.4-m (8-ft.) diameter fairing.

McDonnell Douglas Astronautics Corp., Huntington Beach, Calif., is the prime contractor for production and launch of the Delta launch vehicle. The company developed and made available commercially the Payload Assist Module (PAM-D) which takes the place of Delta's third stage and is considered part of the payload on the WESTAR IV launch. A Thiokol Star 48 solid fuel motor is the propulsion system for PAM-D. The apogee kick motor, mounted inside the spacecraft itself, is a Thiokol Star 30 motor.

About 25 minutes after liftoff, Delta 160 will have done its job and WESTAR IV will be inserted into an elliptical transfer orbit near synchronous 36,435 kilometers (22,640 miles) by 170 km (106 mi.) by the PAM stage. During the transfer stage, WESTAR ground stations at Glenwood, N.J.; Estill Fork, Ala.; Lake Geneva, Wisc.; Steele Valley, Calif.; Cedar Hill, Texas; Sky Valley, Calif.; and Issaquah, Wash., provide global tracking, telemetry and command coverage.

On the seventh apogee, the Star 30 apogee kick motor will be fired to produce a near-synchronous orbit. Positioning of the spacecraft at 99 degrees west longitude above the equator will follow using the satellite's on-board attitude positioning gas system.

Nominal orbit characteristics are:

|                  |                        |
|------------------|------------------------|
| Apogee Altitude  | 36,435 km (22,640 mi.) |
| Perigee Altitude | 170 km (106 mi.)       |
| Inclination      | 27.5 degrees           |

Operational Orbit:

|                   |                 |
|-------------------|-----------------|
| Station Longitude | 99 degrees west |
|-------------------|-----------------|

(END OF GENERAL RELEASE; BACKGROUND INFORMATION FOLLOWS.)

TRAJECTORY SEQUENCE OF EVENTS

| <u>Event</u>                     | <u>Liftoff<br/>(min/sec)</u> |
|----------------------------------|------------------------------|
| Liftoff                          | 0:00                         |
| Six Solid Burnout                | 0:57                         |
| Three Solid Ignition             | 1:02                         |
| Separate three solids            | 1:10                         |
| Separate three solids            | 1:11                         |
| Three Solid Burnout              | 1:59.2                       |
| Separate three solids            | 2:05.5                       |
| MECO                             | 3:43.8                       |
| First/Second Stage Separation    | 3:51.8                       |
| Second Stage Ignition            | 3:57.8                       |
| Fairing Drop                     | 4:01                         |
| Second Stage Engine Cutoff       | 9:02                         |
| Begin Coast Phase Pitch Maneuver | 10:00                        |
| End Coast Phase Pitch Maneuver   | 11:40                        |
| Begin Coast Phase Yaw Maneuver   | 11:50                        |
| End Coast Phase Yaw Maneuver     | 12:30                        |
| Fire Spin Rockets                | 19:33                        |
| Second/Third Stage Separation    | 19:35                        |
| PAM Ignition                     | 20:13                        |
| PAM Burnout                      | 21:38                        |
| Spacecraft Separation            | 23:33                        |

NASA/WESTAR IV TEAM

NASA Headquarters

|                      |  |
|----------------------|--|
| Dr. Stanley I. Weiss | Associate Administrator for<br>Space Transportation Systems    |
| Joseph B. Mahon      | Director, Expendable Launch<br>Vehicle Program                 |
| Peter Eaton          | Manager, Delta   |
| Robert E. Smylie     | Associate Administrator for<br>Space Tracking and Data Systems |

Goddard Space Flight Center

|                      |  |
|----------------------|--|
| A. Thomas Young      | Director   |
| William C. Keathley  | Director, Project Management                       |
| David W. Grimes      | Delta Project Manager                              |
| William R. Russell   | Deputy Delta Project Manager,<br>Technical         |
| John D. Kraft        | Manager, Delta Mission<br>Analysis and Integration |
| Richard H. Sclafford | WESTAR IV Mission Integration<br>Manager           |
| Robert I. Seiders    | Mission Operations and Network<br>Support Manager  |
| Ray Mazur            | Mission Support                                    |

Kennedy Space Center

|                  |   |
|------------------|---|
| Richard G. Smith | Director                                    |
| Thomas S. Walton | Director, Cargo Operations                  |
| Charles D. Gay   | Director, Expendable Vehicles<br>Operations |
| D.C. Sheppard    | Chief, Automated Payloads<br>Division       |

Kennedy Space Center (cont'd.)

Wayne L. McCall

Chief, Delta Operations  
Division

Barry Olton

Spacecraft Coordinator

Western Union

J.W.R. Pope

Vice President, Engineering

B. Weitzer

Vice President, Operations

William Callanan

WESTAR Program Manager

Edward Levine

Director, Satellite Engineering

J.W. Van Cleve

Executive Consultant, Satellite  
Operations

F.W. Zeigler

Executive Consultant,  
Engineering

E.J. Minger

Director, Launch Services

Hughes Aircraft Co.

L.A. Gustafson

WESTAR Program Manager

C.T. McGee

Assistant WESTAR Program  
Manager

A.F. Berg

Manager, Launch Operations

CONTRACTORS

Hughes Aircraft Co.  
Space Division  
Redondo Beach, Calif.

Spacecraft

Western Union  
Upper Saddle River, N.J.

Spacecraft Management  
Development/Production

McDonnell Douglas  
Astronautics Co.  
Huntington Beach, Calif.

Delta Launch Vehicle and PAM-D  
Payload Stage

Rocketdyne Division  
Rockwell International  
Canoga Park, Calif.

First Stage Engine (RS-27)

Thiokol Corp.  
Huntsville, Ala.

Castor IV Strap-on Solid Fuel  
Motors

TRW  
Redondo Beach, Calif.

TR-201 Second Stage Engine

Delco  
Santa Barbara, Calif.

Guidance Computer

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