Boeing 702 Fleet

- List of Boeing 702 Programs
- List of 702s On Order

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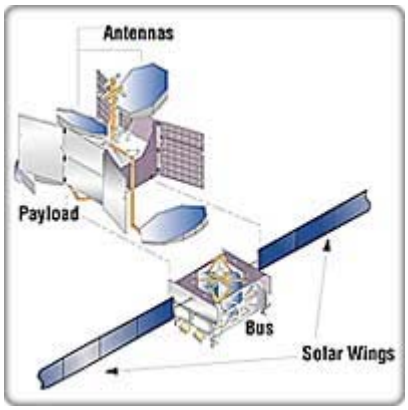
Satellite operators have responded enthusiastically to the vastly increased capabilities represented by the Boeing 702. Boeing Satellite Systems (BSS) announced the innovative satellite series in October 1995. Evolved from the popular, proven 601 and 601HP (high-power) spacecraft, the body-stabilized Boeing 702 is the world leader in capacity, performance and cost-efficiency.

As of June 2005, 19 of these powerful satellites had been ordered, with options for six more. The first satellite was launched in 1999. The satellite can carry more than 100 high-power transponders, and deliver any communications frequencies that customers request.

The Boeing 702 design is directly responsive to what customers said they wanted in a communications satellite, beginning with lower cost and including the high reliability for which the company is renowned. For maximum customer value and producibility at minimum total cost, the Boeing 702 offers a broad spectrum of modularity. A primary example is payload/bus integration. After the payload is tailored to customer specifications, the payload module mounts to the common bus module at only four locations and with only six electrical connectors. This design simplicity confers major advantages. First, nonrecurring program costs are reduced, because the bus does not need to be changed for every payload, and payloads can be freely tailored without affecting the bus. Second, the design permits significantly faster parallel bus and payload processing. This leads to the third advantage: a short production schedule.

Further efficiency derives from the 702's advanced xenon ion propulsion system (XIPS), which was pioneered by BSS and is produced today by Boeing Electron Dynamic Devices, Inc. XIPS is 10 times more efficient

than conventional liquid fuel systems. Four 25-cm thrusters provide economical stationkeeping, needing only 5 kg of fuel per year - a fraction of what bipropellant or arcjet systems consume. Using XIPS for final orbit insertion conserves even more mass as compared to using an on-board liquid apogee engine. Customers can apply the weight savings to substantially increase the revenue-generating payload at small marginal cost, to prolong service life, or to change to a less expensive launch vehicle (when cost is based on satellite mass).



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For even more versatility, the Boeing 702 also incorporates a bipropellant propulsion system, which can lift the satellite into final orbit after separation from the launch vehicle.

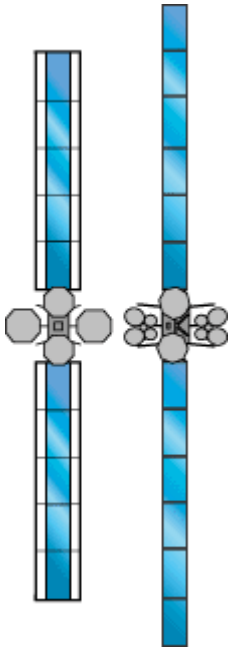
Innovation extends to the Boeing 702 power systems as well. The Boeing 702 offers a range of power up to 18 kW. Dual and triple-junction gallium arsenide solar cells enable such high power levels. Spectrolab, Inc. a Boeing subsidiary, developed the cells.

The Boeing 702 separates the bus and payload thermal environments and substantially enlarged the heat radiators to achieve a cooler, more stable thermal environment for both bus and payload. This increases unit reliability over service life. Deployable radiators use flexible heat pipes, which increase packageable radiator area. Further thermal control occurs through passive primary rejection via heat pipes.

The baseline Boeing 702 is compatible with several launch vehicles. These include the Delta IV, Atlas III and Atlas V families, Ariane 5, Proton, and Sea Launch.

Anik F

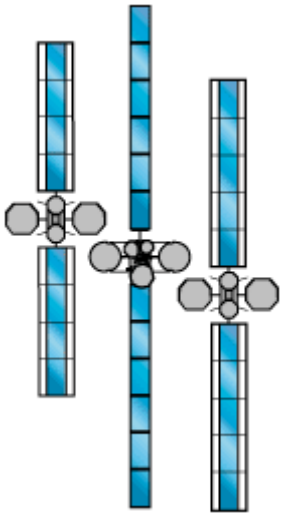
Telesat Canada, Gloucester, Ontario



Telesat is Canada's national satellite communications company. "Anik" means "little brother" in the Inuit language. BSS built Telesat's first satellites, the Anik A series, more than 25 years ago. The Anik F series is Telesat's newest generation, and sixth series of satellites.

Anik F1 was ordered in March 1998, and is a Boeing 702 model. The satellite carries 84 active transponders: 36 in C-band and 48 in Ku-band. The spacecraft will provide general telecommunications services for North and South America. The satellite was designed for an end-of-life power of 16 kW. Anik F1 was launched in late 2000 on an Ariane 4 rocket.

Telesat Canada ordered another Boeing 702, Anik F2, in April 2000. The satellite will offer fixed satellite service, including Internet access, and will provide Ka-band multimedia services across North America. Anik F2 will operate with a total of 114 transponders: 50 in Ka-band, 40 in Ku-band and 24 in C-band. The satellite will carry the flight-proven xenon ion propulsion system for all on-orbit maneuvering. The spacecraft is designed for an end-of-life power of 16 kW. Anik F2 is scheduled to be launched in 2004 on an Ariane 5.



Galaxy and PAS

PanAmSat Corporation, United States

PanAmSat Corporation of Wilton, Conn., was the first customer for the Boeing 702, having ordered three: Galaxy XI, Galaxy IIIC, and PAS-1R. Galaxy XI was the first Boeing 702 satellite. It was ordered in May 1997 and was successfully launched in December 1999 on an Ariane 4 rocket from Kourou, French Guiana. Galaxy XI has a payload of 64 active transponders; 24 operate in C-band and 40 operate in Ku-band. The spacecraft was designed for an end-of-life power of more than 10 kW. The satellite provides service to North America and Brazil.

Galaxy IIIC was ordered in August 1997 and was launched on June 15, 2002 by Sea Launch. The satellite serves North, South and Central America with a total of 77 transponders; 24 in C-band and 53 in Ku-band. The spacecraft was designed for an end-of-life power of 15 kW.

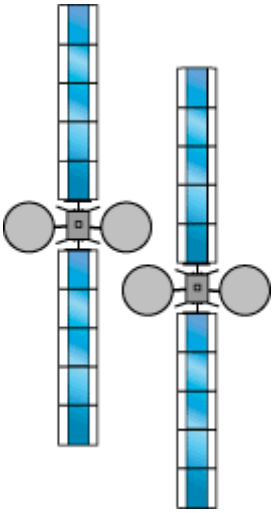
PAS-1R was also ordered in August 1997. The satellite carries 72 active transponders: 36 in C-band and 36 in Ku-band. That is three times the capacity of PAS-1, the spacecraft it replaced. PAS-1R designed for an end-of-life power of more than 14 kW. The satellite provides coverage to four continents from its slot over the Atlantic Ocean. PAS-1R was launched in 2000 on board an Ariane 5 rocket.

Spaceway North America

Hughes Network Systems, United States

Hughes Network Systems is developing a global satellite network named Spaceway™, which will provide high-bandwidth and high-speed communications for broadband and multimedia applications.

The North American constellation will include two Boeing 702 geosynchronous satellites and one in-orbit spare. The satellites are the next generation in satellite communications technology, transmitting and receiving up to 100 times faster than conventional telephone lines. Spaceway North America will operate in Ka-band. The first of the three satellites is scheduled to be launched in 2004 by Sea Launch.



XM

XM Satellite Radio, Inc., United States

XM Satellite Radio ordered two Boeing 702 satellites in March 1998, and later ordered a third to serve as a ground spare. These S-band spacecraft provide state-of-the-art digital radio programming directly to cars, homes and portable radios coast-to-coast in the United States. The satellites have a Digital Audio Radio payload provided by Alcatel of France. The satellites were designed for an end-of-life power of more than 15 kW. The first two XM satellites -- XM-Rock and XM-Roll -- were launched in 2001 by Sea Launch. XM-3 was launched in 2005 by Sea Launch. A fourth XM satellite was ordered in August 2003 and is scheduled for delivery in 2005.

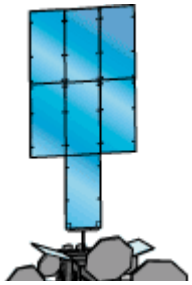
Wideband Gapfiller Satellite System

Space and Missile Systems Center, U.S. Air Force Space Command

In early 2001, a satellite communications industry team led by Boeing Satellite Systems was selected to develop the Wideband Gapfiller Satellite (WGS) system. This high-capacity satellite communications system is intended to support the warfighter with newer and far greater capabilities than provided by current systems.

A joint-service program funded by the U.S. Air Force and Army, WGS includes options for up to six Boeing 702 satellites and their associated spacecraft and payload control equipment. Operational and logistics support and training are also included in the program.

In 2002, the customer exercised options authorizing Boeing to build the first three WGS spacecraft. The first two satellites are scheduled to launch in 2005, with the third one to follow in 2006, all aboard a U.S. Air Force Evolved Expendable Launch Vehicle. WGS will provide two-way X-band and Ka-band communications as well as Ka-band broadcast services to U.S. Armed Forces and other agencies worldwide.



NSS-8

New Skies Satellites N.V., The Hague

NSS-8 is the first Boeing satellite to be procured by New Skies, an independent global satellite operator that was formed through the partial privatization of

INTELSAT. The spacecraft will carry 56 active C-band and 36 active Ku-band high power transponders, making it one of the largest and highest power satellites in the region. Four 25-cm XIPS thrusters built by Boeing Electron Dynamic Devices, Inc., will perform orbit raising and stationkeeping duties. Advanced triple-junction gallium arsenide solar panels built by Spectrolab are designed to deliver 17.6 kilowatts of total spacecraft power at end of life.

NSS-8 will be stationed at 57 degrees East longitude. The spacecraft's 27 beams will create nine footprints that will blanket Europe, Asia, India, the Middle East, Africa, Australia, and the Indian Ocean. Extensive beam-to-beam interconnectivity built into NSS-8's design will allow New Skies to offer flexible solutions to customer requirements and respond to market conditions over the spacecraft's life.

The NSS-8 contract includes options for up to two follow-on spacecraft. Sea Launch was selected as the launch provider under this delivery-in-orbit contract. NSS-8 is scheduled to launch in 2004.