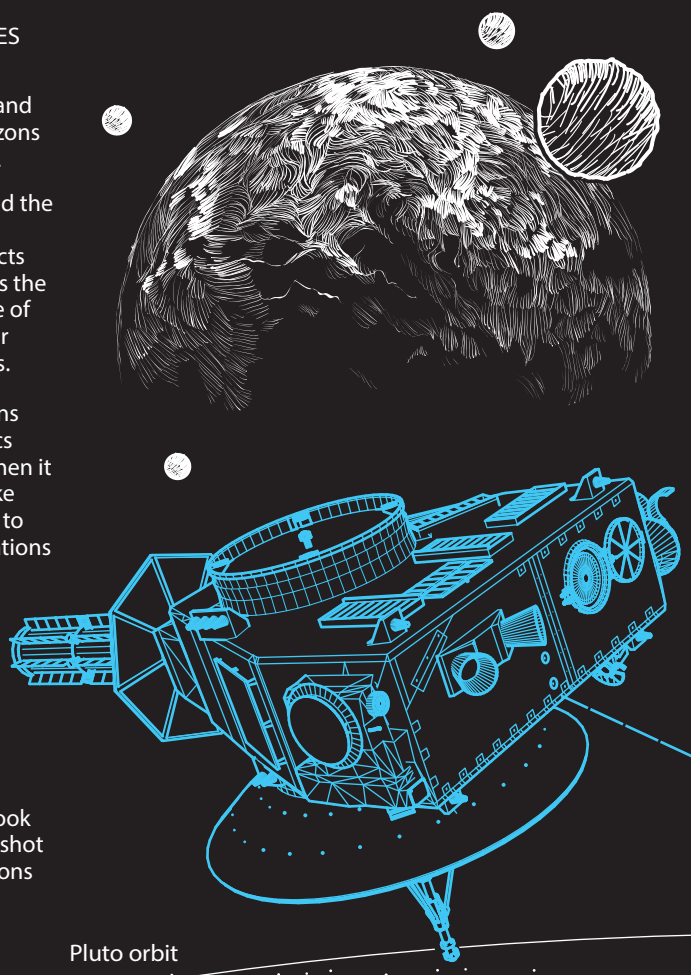
9 YEARS AND 3,000,000,000 MILES

It has been more than nine years and 3 billion miles since the New Horizons spacecraft launched in early 2006.

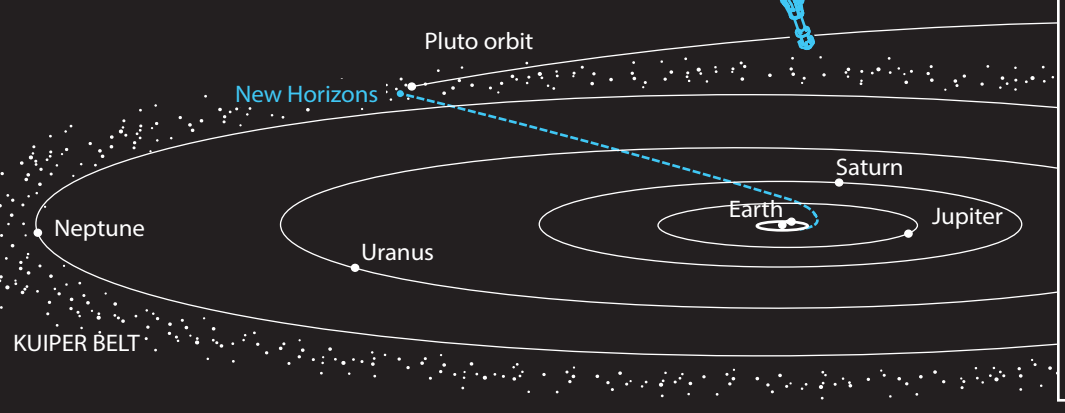
This is the first mission to Pluto and the Kuiper Belt, a gigantic zone of icy bodies and mysterious small objects orbiting beyond Neptune. It marks the first direct exploration of this zone of our solar system, beyond the inner rocky planets and outer gas giants.

The craft was designed at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Md. When it reaches Pluto on July 14, it will take almost 4½ hours for a radio signal to travel from it to the mission operations center at APL.



The route to Pluto and beyond

In February 2007, New Horizons took advantage of a gravity-assist slingshot from Jupiter, speeding New Horizons up to more than 51,000 mph.

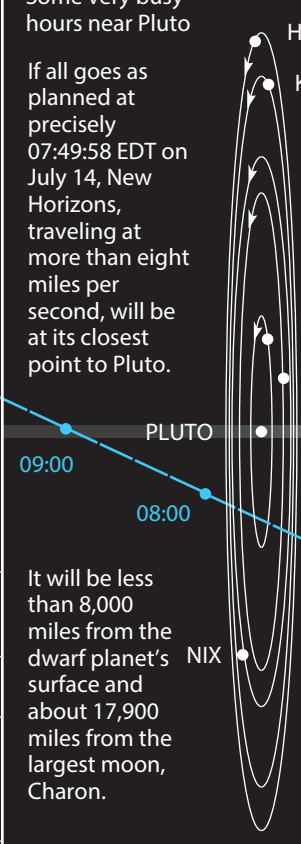


Pluto's new moons in sight

While still at a distance of more than 55 million miles from the Plutonian system, observations by long-range imager showed Pluto's largest known moon, Charon, plus smaller moons Nix and Hydra. New Horizons also saw, for the first time, the tiny moons of Kerberos and Styx, originally discovered in 2011 by the Hubble Space Telescope.

Some very busy hours near Pluto

If all goes as planned at precisely 07:49:58 EDT on July 14, New Horizons, traveling at more than eight miles per second, will be at its closest point to Pluto.



It will be less than 8,000 miles from the dwarf planet's surface and about 17,900 miles from the largest moon, Charon.

APL scientists may redirect the craft farther out from the system if there is a strong possibility of impacting debris.

THE TINY NEW HORIZONS SPACECRAFT IS JAM-PACKED WITH SCIENTIFIC EXPERIMENTS

Long Range Reconnaissance Imager (LORRI)

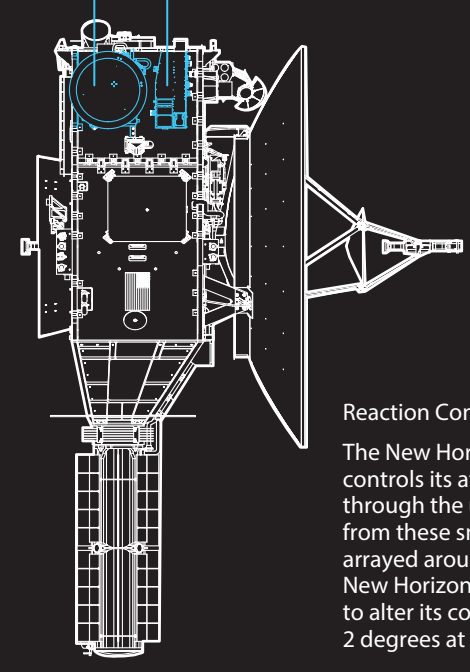
LORRI is the highest resolution instrument on board. At Pluto, LORRI will take images in which football-field-sized features will be visible.

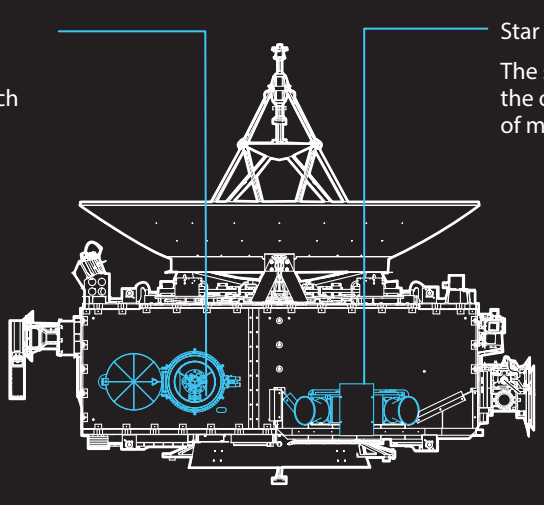
Ralph

Using a single telescope with a 3-inch aperture, this compound instrument collects many wavelengths of light to obtain high-resolution surface composition maps of the surfaces of Pluto and its moons both in visual and infrared.

Alice

Alice is an ultraviolet imaging spectrometer that separates light into its constituent wavelengths and will probe the atmospheric composition of Pluto.





Star Trackers

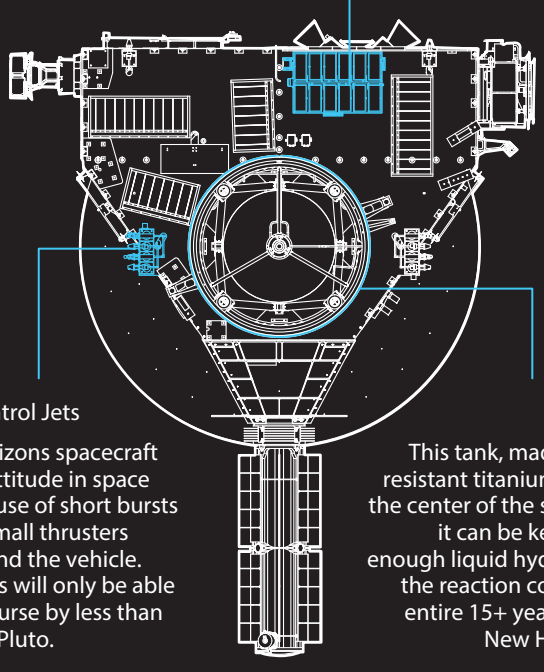
The star trackers are dual cameras used to compare the observed star fields against an on-board database of more than 18,000 star patterns.

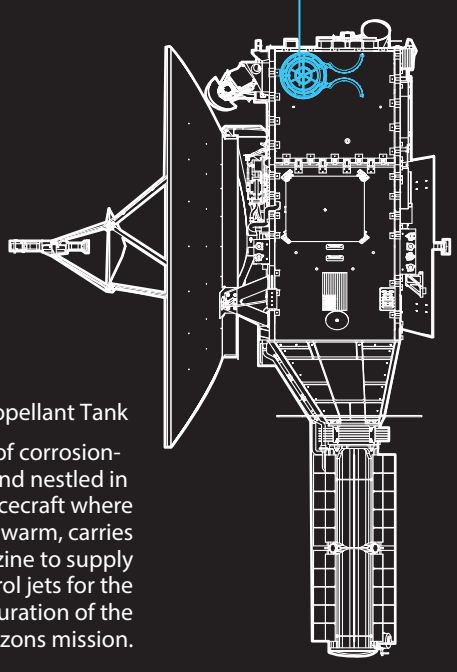
The Student Dust Counter (SDC)

The SDC, which was designed, built and operated by students at the University of Colorado, faces in the direction of spacecraft travel so it is exposed to dust particle impacts.

Solar Wind At Pluto (SWAP)

The SWAP instrument will measure charged particles from the solar wind near Pluto to determine how fast its atmosphere is escaping.





Reaction Control Jets

The New Horizons spacecraft controls its attitude in space through the use of short bursts from these small thrusters arrayed around the vehicle. New Horizons will only be able to alter its course by less than 2 degrees at Pluto.

Propellant Tank

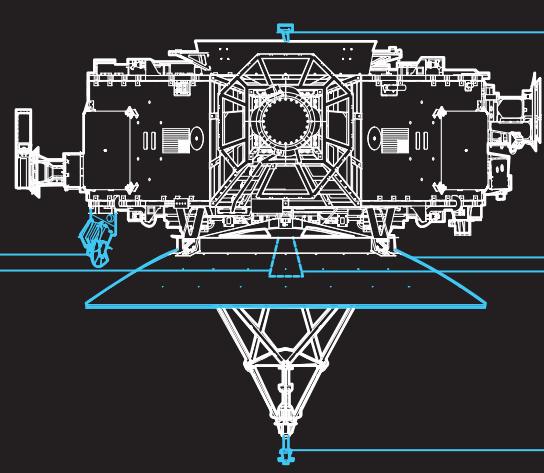
This tank, made of corrosion-resistant titanium and nestled in the center of the spacecraft where it can be kept warm, carries enough liquid hydrazine to supply the reaction control jets for the entire 15+ year duration of the New Horizons mission.

Pluto Energetic Particle Spectrometer Science Investigation (PEPSSI)

PEPSSI is a plasma-sensing instrument that will search for neutral atoms that escape Pluto's atmosphere and subsequently become charged by their interaction with the solar wind.

The Radio Experiment

As the spacecraft passes behind Pluto, with respect to Earth it will precisely measure how incoming radio signals are affected by the thin Pluto atmosphere.



Low Gain Antenna 1

Sitting just above the propellant tank is one of two LGAs, which provided communications with Earth during launch and early operations.

High Gain Antenna (HGA)

The HGA main dish collects incoming signals but also forms outgoing signals.

HGA Feedhorn

The feedhorn directs the radio signals in and out of the spacecraft.

Low Gain Antenna 2

Radioisotope Thermoelectric Generator (RTG)

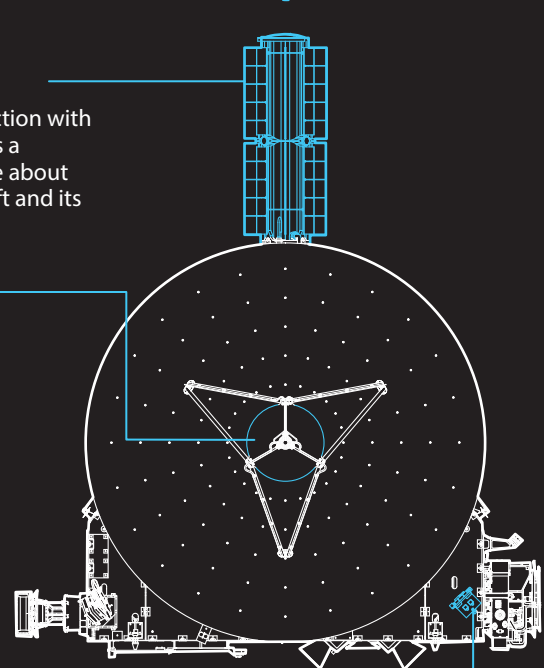
Pluto is so far from the sun that power production with solar cells is impractical, so New Horizons uses a decaying radioisotope as a battery to produce about 200 watts of electrical power for the spacecraft and its instrument payload at Pluto.

Medium Gain Antenna (MGA) and HGA Secondary Dish

The Earth-facing side of the dish redirects incoming and outgoing signals to and from the MGA on the spacecraft-facing side.

Sun Sensor

For maximum data rate, the HGA must be kept pointing toward Earth. If the spacecraft loses track of its attitude, this sun sensor will allow the spacecraft to regain a sun-pointing orientation and receive commands from Earth.



Weight and size of New Horizons

The spacecraft weighed a mere 1,054 pounds at launch (about as much as a couple of snowmobiles).

The weight of the spacecraft structure was minimized by using honeycomb aluminum panels. This design cuts the weight of each panel by 90 percent of an equally strong solid aluminum panel.

R2-D2 to scale

Aside from the communication dishes and the radioisotope battery tube, the whole framework is about six feet on a side and about two feet deep (about the size of a grand piano).

Source: Johns Hopkins University Applied Physics Laboratory

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