

MARINER VENUS / MERCURY 1973 STATUS BULLETIN

Mariner 10 to Recieve Trajectory Correction Manuver on Tuesday 13 November

Mariner 10 mission status as of 01:29 PST, 9 November 1973 (Day 313) --- (approx L + 148 hr) is normal with the exception of the loss of TV optic heaters and the PSE problem. These anomalies are being investigated. The PSE SES was turned on and the checkout sequence that followed produced excellent results.

SIGNIFICANT MISSION EVENTS/TIMES

CC&S Update U-0.4	14:50 PST (7 November 1973)
Pleiades Star Pictures	18:50 PST (7 November 1973)
PSE Troubleshooting	21:45 PST (7 November 1973)
Charged Particle Telescope Calibration	15:23:00 PST (8 November 1973)
Plasma Science Experiment (SES) Turn On	17:40:00 PST (8 November 1973)
Plasma Science Experiment (SES) LQ Scan	17:59:23 PST (8 November 1973)

The Mariner 10 is presently on a course which would place it 50,000 kilometers on the sunward side of Venus. The estimated time of arrival (ETA) is three hours later than desired.

The Trajectory Correction Maneuver will increase the speed by 7.8 m/sec and reduce the flight time to Venus by three hours. The TCM will also cause the spacecraft to pass through the desired aim point approximately 17,000 kilometers on the dark side of Venus.

A pitch of 127.4 degrees preceded by a roll of -311 degrees will align the thrust vector in the proper direction.

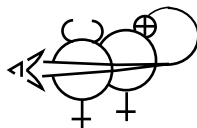
The velocity of the midcourse velocity increment toward Earth will be 4.65 m/sec.

The maneuver burn will occur at 4:45 PM PST on Tuesday, November 13, 1973. It will increase the energy slightly and serve as a kick to boost the spacecraft on toward Mercury.

Lewis Research Center reports a bias error in the W accelerometer which is along the second Centaur burn thrust line is the principal cause of the atypical velocity correction required.

The Charged Particle Telescope (CPT) calibration was conducted on Thursday, 8 November 1973 from 15:23:00 PST to 16:00:00 PST. The data looked good and the instrument performance continues normal. The Plasma Science Experiment (PSE) Scanning Electron Spectrometer (SES) turn on and checkout sequence followed with excellent results. The SES data was routed to the Goddard Space Flight Center (GSFC) Remote Information Center (RIC), and the GSFC members of the PSE experiment team followed the procedure in real time with voice communications with the Massachusetts Institute of Technology (MIT) and Los Alamos Scientific Laboratory (LASL) members via black phone. The GSFC members were able to compute approximate plasma density, electron temperatures, and flux using this real time data and the results looked reasonable. The Principle Investigator (PI), Dr. Herbert S. Bridge stated that although his experiment is painfully degraded with the apparent loss of SEA data, valuable information concerning the solar wind and the interaction with both Venus and Mercury can now be anticipated.

Star photography commenced on 312/1100 PST to provide point image data to verify focus performance. Image Processing Lab analysis of the results of the test are now complete, and good focus has been verified. During the Pleiades picture sequence a total of 84 pictures were taken.



MARINER VENUS/MERCURY 1973 PROJECT OFFICE

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National Aeronautics and Space Administration
Pasadena, California

November 9, 1973

BULLETIN NO. 4