

# MARINER VENUS / MERCURY 1973

## STATUS BULLETIN

### Maneuver Summary and Spacecraft Parameters Set For Trajectory Correction Maneuver (TCM-1)

The Mariner 10 mission status as of 14:45 PST, 11 November 1973 (D313)—(approximately L + 209 hours) is normal with the exception of the Optics heaters, and the Plasma Science Experiment (PSE) Scanning Electrostatic Analyzer (SEA). The U 2.0 update was accomplished Saturday, 10 November 1973. There were 1,019 commands sent to the spacecraft for this update in preparation for the TCM on Tuesday, 13 November 1973. A checksum was taken and the update was verified. To date, a total of 2,075 commands have been sent to the spacecraft.

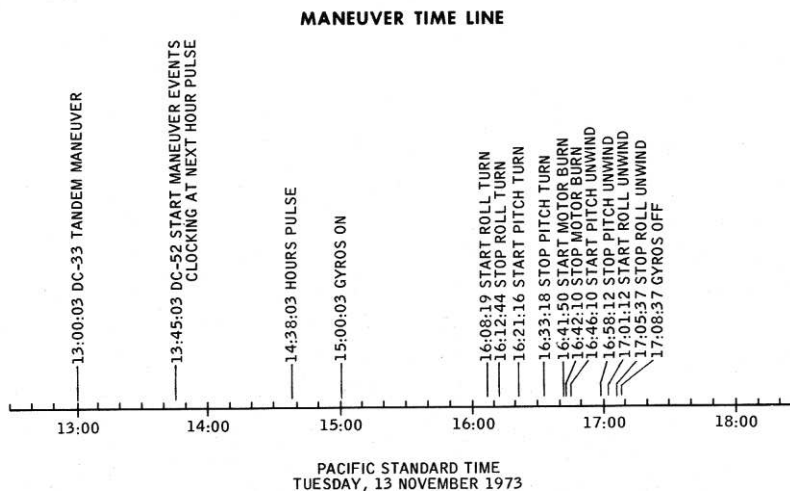
The MTC used at the Cape for prelaunch and launch operations arrived at JPL on Sunday, 11 November 1973. As of 08:30 AM, 12 November 1973, it is up and operating. Diagnostics will be run on the computer on Monday.

#### 1. SIGNIFICANT MISSION EVENTS/TIMES

Test Radio (2A Cyclic)	12:40PST (D313)	Friday, 9 November 1973
S-Band Ranging Off (DC-6)	16:14PST (D313)	Friday, 9 November 1973
Partial Roll Maneuver Start	17:25PST (D313)	Friday, 9 November 1973
Fifth Earth TV Calibration	17:41PST (D313)	Friday, 9 November 1973
Sixth Moon TV Calibration	17:52PST (D313)	Friday, 9 November 1973
UVS Earth Scan	18:10PST (D313)	Friday, 9 November 1973
Partial Roll Maneuver Stop	18:56PST (D313)	Friday, 9 November 1973
S-Band Ranging On (DC-6)	19:46PST (D313)	Friday, 9 November 1973
UVS AG Off (DC-77)	20:10PST (D313)	Friday, 9 November 1973
U 2.0CC&S Update	13:35PST (D314)	Saturday, 10 November 1973
Maneuver Conference	10:00PST (D315)	Sunday, 11 November 1973

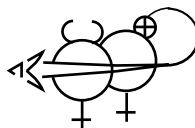
#### UPCOMING SIGNIFICANT EVENTS

The time line below gives the significant events for the maneuver scheduled for Tuesday, 13 November 1973.



#### MARINER VENUS/MERCURY 1973 PROJECT OFFICE

Jet Propulsion Laboratory California Institute of Technology  
National Aeronautics and Space Administration  
Pasadena, California



12 November 1973

**BULLETIN NO. 5**

## 2. NAVIGATION

The latest orbit determination results, which moved the estimated Venus encounter by approximately 15 kilometers, coupled with revised estimates of turn rates have combined to indicate a positive roll turn should be used rather than the negative roll turn originally planned. A summary of the maneuver follows:

### MANEUVER SUMMARY

#### PROPULSION

Burn Time (at S/C)	317: 16:41 :50 PST
Burn Magnitude (DV)	7.77783 m/sec
Burn Duration	19,90 sec
Mass Loss	1.8 kg

#### URNS

Roll Turn	+49.017 deg. 265 sec
Pitch Turn	+127.552 deg. 722 sec
Off Sun	30 min

### SPACECRAFT PARAMETERS

Scan Position:	Cone	96.80 deg.
	Clock	267.01 deg.
HGA Position:	Cone	90 deg.
	Clock	302 deg.
Antenna:	Turns	LGA
	Burn	LGA
	Nulls	None
Battery Usage		3.4 amp-hours
Data Modes:	Turns	17 Pri. Fmt. (2450)
	Burn	17 Man. Fmt. (2450)

## 4. SCIENCE

The 5th Earth and 6th Moon TV calibrations were conducted between 17:41 PST and 18:02 PST on 9 November 1973, following a partial roll maneuver to bring Earth and Moon into clock range. Single-frame photographs of both bodies were obtained—a very fortunate if not unexpected result (split pictures were equally likely, due to limit cycling).

The UVSAG Earth scan sequence was conducted 9 November 1973 between 18:10 PST and 18:40 PST. Optical Navigation photography was conducted between 18:40 PST and 18:45 PST. The data obtained from the UVSAG Earth scan and the Optical Navigation data has not been fully analyzed. The UVSAG power was turned off at 19:50 PST, as was TV electron beam and light flooding at 20:00 PST. The latter was turned off to prolong vidicon life in the continuous power-on state required due to the optics heater failure. At 20:30 PST the Magnetometer heaters were cycled (on/off) to provide information on the effect of heater cycling on the Magnetometer science data. The Charged Particle Telescope (CPT) and the Plasma Science Experiment (PSE) Scanning Electron Spectrometer (SES) both continue to perform normally. There was no change in PSE Scanning Electrostatic Analyzer (SEA) status and no troubleshooting commands were initiated.