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Cameras on Ranger Fail As It Hits Moon Precisely

All 6 Units Unable to Transmit Pictures of Lunar Surface—Officials Fearful of Capitol Reaction to 6th Setback

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Special to The New York Times

PASADENA, Calif., Feb. 2—Ranger 6 crashed onto the moon precisely on target today at 4:24 A.M., Eastern standard time. But it was unable to send back the pictures of the lunar surface it was to have taken in the final minutes before impact.

Engineers of the Jet Propulsion Laboratory here gathered later in the morning, after a few hours' fitful sleep, to begin tracing the trouble.

They had little heart for the job. But it was urgent that the problem be solved as quickly as possible.

A repeat flight is scheduled in less than a month. It will be delayed if the cause of failure is not nailed down.

There was an undercurrent of concern that the latest breakdown in the Ranger program—the sixth straight—

would generate a clamor in Congress that could jeopardize the future of the \$252 million project.

Close-up photographs of the moon are urgently needed by the National Aeronautics and Space Administration to put a manned expedition on the moon by 1970.

The agency must have a better idea of the nature of the lunar surface so it can either confirm the soundness of design of the spacecraft being built or start designing something different.

Program Months Late

The Ranger program already is many months late. So is the Surveyor program in which spacecraft are to be "soft-landed" with cameras and devices to analyze lunar soil. The first flight is set for late 1965.

A third project, Lunar Orbiter, was undertaken recently. Spacecraft are to be put in orbit around the moon and take endless strips of lunar photographs from there. But the first flight is not until 1966.

"It was a sad finish to something that was going so good," Dr. William Pickering, head of the laboratory, said. The laboratory is part of the California Institute of Technology.

The civilian space agency, which had 17 straight orbital successes behind it until today, has been bedeviled by the Ranger program since the first flight in August, 1961. Rangers 1 and 2 were not aimed at the moon but launched on deep-space missions. Both failed when second-stage rockets did not restart.

Other Space Failures

Rangers 3, 4 and 5 were to take close-up lunar photographs and "hard-land" devices to detect lunar quakes. But one Ranger flew past the moon because of excessive speed. Critical electronic devices failed on the others.

Then NASA halted flight plans while the program was thoroughly evaluated.

The study team confirmed the soundness of the concept, but the project was reorganized. The spacecraft scheduled for the sixth flight was sidetracked for brutal ground tests. And numerous design changes were made, with stress on alternate components of key parts.

Thursday morning, after a flight hiatus of 15 months, Ranger 6 was launched.

The initial aim would have missed the moon by a scant 600 miles — well within the cor-

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Cameras Aboard Ranger 6 Fail As Craft Hits Moon Precisely

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reaction capability of a small rocket on board.

About 16 hours after take-off, the acrobatic midcourse correction was performed. The extra rocket thrust was exerted so as to send the 804-pound spacecraft to a landing point in the Sea of Tranquillity.

The midcourse aim was so accurate that, yesterday afternoon, laboratory officials decided they could safely forgo any final maneuver to realign the camera aim.

It looked as if Ranger 6 would make it. More than 20 difficult steps were behind it.

Everything now was up to the battery of six Radio Corporation of America cameras on board and their associated equipment. Officials, noting there were two independent sets of cameras, seemed confident that at last one would work.

About midnight here, officials, newsmen and engineers and their friends began gathering in the auditorium at the foot of the hillside complex of laboratory buildings.

Huge lunar maps were displayed on stage. Cameras hummed and clicked. A closed-circuit TV system took the audience into the nearby operations center, where technicians sat listening to encouraging spacecraft signals. An announcer gave a running account of what was happening.

Finally, the critical time arrived — 19 minutes before impact — when the first Ranger cameras were to turn on. They were to start sending pictures five minutes later.

"As yet we have no indication of full power," the announcer said when transmissions were to start. The first time, it sounded matter of fact.

An Ominous Report

Moments later, he said; "As yet we have no video."

It sounded more ominous. Spirits began to plummet. Spectators whispered anxiously to neighbors. The announcer said it again and again for the next 18 minutes, interspersing the words with the time left to impact.

Three times emergency signals were sent from ground to spacecraft. Three times there was no response.

The failure of both "independ-

ent" camera batteries puzzled observers the most. Engineers acknowledged later that there was a single electronic line for issuing on-board commands to the two sets of cameras. That was but one area of suspicion. The let-down was excruciating.

The week in space had started with a Saturn flight that outdid the Russians in the weight of payloads put in orbit. The Ranger launching raised prospects of the most productive week in the history of the nation's program.

Then, just a few minutes from triumph, the cameras on Ranger failed to report.

It was the week that might have been.