

Astronauts to the Moon

Note the 6th paragraph 1st column about Univac. Scanned by Larry Bolton for the Club.

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U.S. May Send Astronauts to the Moon for Christmas

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HOUSTON, Texas — Preparations to put three astronauts into orbit around the moon this Christmas are so far advanced that only a major failure between now and Tuesday morning in the Apollo 7 flight is likely to change them.

National Aeronautics and Space Administration (NASA) officials will not say publicly until the present Apollo mission is over that the next one will head for a close look at the moon. They admit they want to do it if possible — and that nothing has shown up to make it impossible.

The catch - word here at the moment is "seven come eleven," the implication being that Apollo 7 has been so trouble-free that Apollo 11—sometime next summer—can achieve the manned lunar landing, which is what the Apollo program is all about.

In the meantime, here's how it stands with Apollo 8:

The 360-foot Saturn V rocket—never yet flown with a man on top—is on the launch stand at Cape Kennedy. All tests and checks are scheduled to be completed by Dec. 6.

Univac Division of Sperry Rand, which has provided \$50-million worth of various types of computers (most of them made in St. Paul, the rest at Roseville) for the worldwide space tracking network, has finished preparing the computer programs for a mission around the moon.

The Apollo 8 astronauts have for weeks been working on space navigation techniques, using an improvised simulator that was not available for training the Apollo 7 crew. Thomas O. Paine, the new NASA chief, said they were receiving training in navigation for a possible lunar orbit.

Christopher Kraft, the flight operations director at the Space Control Center here, said he favored a lunar orbit flight before the actual landing was attempted. "It would be valuable for obtaining experience in sending a spacecraft out to that quarter - million - mile distance and operating it in lunar orbit," he said.

Finally, space officials want some close-up pictures of the future lunar landing sites before they schedule the first landing. Apollo 8 may be their only chance to acquire them.

The moon will be in position for such a mission from Dec. 20 through Dec. 27. Target date now for the launch is Dec. 21, between 6:45 and 11:45 a.m., Minneapolis time. There's a similar five - hour "launch window" on each succeeding day.

The crew would be commanded by Frank Borman, and other members are James A. Lovell, Jr. and William A. Anders. Borman and Lovell hold the man-in-space endurance record for a 14-day ride in a Gemini spacecraft in December, 1965. Lovell flew a four-day mission with Edwin E. Aldrin, Jr., a year later. Anders has never been up.

The flight from earth to moon will take about 70 hours, after a couple of earth orbits to be sure the equipment is working right. The Apollo could be sent on a trajectory that would take it around the moon and back to earth without any added rocket power, but if it is working satisfactorily it will be slowed down so that it will coast into an orbit about 70 miles above the surface of the moon.

The present tentative flight plan calls for up to 10 passes around the moon, giving the crew several opportunities to take pictures of at least one of the 3-by-5-mile landing sites selected for the landing mission. The flight would be timed so that the photographs would be taken while the sun was low on the lunar horizon, as it will be when an actual landing is attempted next year. This time of the lunar day was chosen so the shadows would show up the rough spots.

When they're ready to come home the astronauts would fire the big rocket engine in the spacecraft — the engine that has been repeatedly test-fired during the Apollo 7 mission — and it would hurl them on an earth-bound trajectory.

They would come in at about 25,000 miles an hour — compared with the 17,000 mile-per-hour re-entry speed of the Gemini. They have to bounce the spacecraft once off the atmosphere — like skipping a stone on a pond — to slow it down. It's a dangerous maneuver: If they bounce too high they could get marooned in space, because they wouldn't have fuel enough to come down. If they plunge into the atmosphere too steeply they could incinerate the Apollo —and themselves.

Some of the engineers here feel that if Apollo 8 is not sent on a visit to the moon, the shot should be cancelled because Apollo 7 has been so successful there is nothing else Apollo 8 could usefully accomplish.



Kraft



Borman



Lovell



Anders

Plan for Apollo 8