

## Lockheed contract dropped



Lockheed California

*Cheyenne loops and rolls, but may never maneuver through Army objections.*

In its first major crackdown on defense contractors since the Nixon Administration and Congress began scrutinizing defense spending, the U.S. Army last week called "default," and canceled a \$1 billion purchase order with Lockheed Aircraft Corporation for the delivery of 375 newly designed combat helicopters (SN: 5/24, p. 498).

The AH-56-A Cheyenne has been conceived as a fighting craft and developed to combine the unique advantages of a helicopter with the speed and maneuver characteristics of a fixed-wing aircraft. It is a hybrid formula derived from the peculiarities of Vietnam warfare, featuring a speed of over 250 miles per hour, a potent firepower capability mated to an automatic infrared weapon-aiming system and laser-beam rangefinder, plus the ability to perform loops and rolls unlike any other helicopter. It is far from being the sitting duck which limits the strategic role of its predecessors.

**The Army canceled** its production contract following Lockheed's reply to an Army cure notice of April 10, which requested the correction of numerous technical problems. Lockheed, the Army says, did not come up with adequate solutions, and further, the manufacturer's approach involved production delays.

Ironically, the Cheyenne's most serious problem, according to the Army, is with its flight stability. This is the most salient attribute of the new rigid-rotor design (SN: 3/23/68, p. 291) which is supposed to provide more stability than the conventional hinged rotor. It is this characteristic around which all the heavy armament and sophisticated electronic systems have been planned.

Though Lockheed engineers disagree, some aeronautical engineers who have

worked with the rigid rotor contend that it is suitable for light aircraft, but that the 18,000-pound Cheyenne is more than double the optimum weight for which the rigid design is practical.

In a vastly detailed reply to the cure notice, Lockheed itemized its plans for correcting the problems which concerned the Army, and asked for about a six-month delay on delivering the 375 helicopters. Lockheed contends that, since the Cheyenne represents a rather significant technological advancement and not just an improvement over an existing line of aircraft, a six-month delay in delivery is not unusual.

**Lockheed is not** worried about the rigid-rotor design, nor anything else basic to the soundness of the Cheyenne. It describes the problems as "normal developmental" bugs that come up during the early stages of every innovative effort in the aircraft industry. The Army will probably continue funding the research phase of the Cheyenne contract, on which it has expended some \$90 million to date.

The cancellation of the Cheyenne contract came as Lockheed was under Congressional fire for another Defense Department contract, the giant C-5A transport.

### VENUS PROBES

## To the moon, to the planets

The Soviet Union has made plain its intention to be the first on the planets. While the United States is concentrating on putting a man on the moon, the Russians, who were the first to make a soft landing on the moon, have gone on to other things.

In the planetary shooting contest the Russians have by-passed only one fa-

vorable window, as space technologists call the periods of time when the configurations of the planets allow probes to be sent, since such voyages became possible. The pass was an opening for Mars that occurred after the U.S. Mariner 4, in 1965, had shown the Martian atmosphere to be 10 times as thin as previously supposed. An American observer, Dr. Conway Snider of the Jet Propulsion Laboratory, suggests that they would not have missed that one had they been able to redesign their hardware for a landing through the thinner atmosphere in time.

Landing has always been the Russians' goal. They have generally gone straight to it without spending much effort on flybys or orbiters as the U.S. planetary program has. A Russian attempt at Mars, which was simultaneous with the Mariner 4 flyby four years ago, suffered an equipment failure. Soviet scientists tried again this year at the same time that the U.S. sent off two Mariners for near-Mars missions, but their craft did not get out of earth orbit.

**Thus, by the** accident of equipment failure, Russian successes have concentrated on Venus. There they have hit three times. The last two were Venera 5 and Venera 6, which entered the Cytherean atmosphere three days apart within the last two weeks.

The Soviets did not at first claim that equipment had functioned all the way to the surface for the two new Veneras as they had claimed for Venera 4 two years ago. The Venera 4 claim was later proved wrong to the accompaniment of much embarrassment (SN: 8/24, p. 179).

Whether the equipment did function all the way down will ultimately become clear. Meanwhile observers speculate both ways. Dr. Frank Drake of Cornell University suspects that it didn't make it. Dr. Snider thinks it did. "Apparently the two probes sent back information for approximately the same time," he says, "my own guess would be that this shows that they both landed and stopped broadcasting." If pressure or heat somewhere in the atmosphere had shut them off, he feels, it would be far less likely that both would have lasted the same 53 minutes.

**The hope is** that the Russians have better measuring equipment on these two probes than they had on Venera 4. One problem with Venera 4, says Dr. Drake, was that its equipment "was not fail-safed. If it failed and gave erroneous readings, there was no way to know." He hopes this one is fail-safed.

Dr. Snider also points out that if it were not for the series of accidents, the Russians would be far ahead of the U.S. in planetary exploration. The U.S. does not plan a planetary landing until 1973 when one is scheduled for Mars.

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