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WEATHER SATELLITE EQUIPPED BY R.C.A.

Weather-Reporting Apparatus Was Constructed at Plant on Hightstown Road

IS 'MAJOR ACHIEVEMENT'

The United States' new Tiros satellite, carrying the nation's most advanced space-borne television "eye" to study the world's weather, is the information-gathering element in a complex satellite-and-ground system developed by the Radio Corporation of America. The satellite was launched at Cape Carnaveral, Florida, on Friday morning on a Thor-Able rocket.

The satellite comprises perhaps the most elaborate electronics package yet sent into orbit around the earth, containing specially-designed miniature television cameras, video tape recorders, transmitters, solar cell and rechargeable battery power supplies, and an array of control and communications equipment.

Speeding along its course in space, the satellite is linked to an extensive ground network of tracking and re-receiving stations, data-processing systems, and programming and control centers. Together, the satellite and ground equipment form a unified system to gather and analyze world-wide data on cloud formation in the earth's atmosphere.

The Tiros system, including the satellite and its associated ground network, was designed and constructed by scientists and engineers of R.C.A.'s Astro-Electronic Products Division, on the Hightstown Road, under the general systems management of the National Aeronautics and Space Administration and the technical direction of the United States Army Signal Research and Development Laboratory at Fort Monmouth. It evolved from the original concept of Vanguard II, a weather satellite developed by the Army Signal Corps for NASA.

Dr. Elmer W. Engstrom, senior executive vice president of R.C.A., described the system as a "major achievement in space technology and in electronics for space."

"The success of Tiros stands as a tribute to the vision and skill of scientists and engineers in the government and military services, in universities, and in industry," he said. "As the prime contractor to the government in the Tiros program, R.C.A. is proud to have borne a major part in translating this inspiring concept into a practical system of such immense significance to us all."

The importance of the Tiros system as a new experimental tool for meterologists was emphasized by Barton Kreuzer, manager, marketing, of the Astro-Electronic Products Division, who said:

"The mission of the Tiros satellite is the visual observation of cloud formations over large portions of the earth to produce new information about such weather phenomena as hurricanes, typhoons and the movement of weather fronts. Besides providing unprecedented and comprehensive visual coverage of global weather on a swift and continuous basis, the satellite will give meteorologists for the first time a means of checking the accuracy of present weather reporting from ground stations around the world. Thus it promises not only to lay the groundwork for new satellite weather services in the future, but also to increase the effectiveness of present world-wide weather information gathering methods."

The path of the satellite, circling the globe from west to east about every 90 minutes at an altitude of about 400 miles, will permit cloud observations throughout a belt extending from the latitude of Santa Cruz, Argentina, in the south, to the latitude of Montreal, Canada, in the north. During its planned operating lifetime of 90 days, the satellite is expected to complete about 1,300 orbits, covering every part of this belt many times.

Sidney Sternberg, chief engineer of the Astro-Electronic Products Division, has summarized the principal features:

Shaped like a drum 42 inches in diameter and 19 inches in depth, the vehicle is covered on its top and sides with over 9,000 solar cells which generate electricity directly from sunlight to charge an assembly of small storage batteries that power the electronic equipment.

The key function of the satellites is performed by two complete television systems capable of taking a series of still pictures of cloud formations during each orbit.

Linked to each camera is a miniature television magnetic tape recorder specially designed by R.C.A. engineers for satellite use. Each of the recorders stores up to 32 individual pictures taken by the camera during a single orbit. When the satellite passes within range of one of the ground stations, a command signal causes the information to be read from the tape into the satellite transmitter for transmission to the earth.

At the start of each orbit, the television cameras can be instructed electronically by the ground stations to photograph an area of specific interest—such as a typhoon center over the Pacific or a hurricane in mid-Atlantic.

Tiros, the name of which is derived from the first letters of Television Infra-Red Observation Satellite, was developed by engineering groups under Vernon D. Landon and Edwin A. Goldberg. Sidney Sternberg is chief engineer of the division.

Other members are Abraham Schnapf, Sidney Metzger, Kenneth G. MacLean, Warren P. Manger, Max Mesner, C. C. Martinelli, Jules Lehmann, Carl C. Osgood, John A. Strother and Joseph A. Zenel.