MISSILES

Skylark Progress

An altitude of 83 miles was reached by Skylark high-altitude research rocket which was fired last November 13, the British Ministry of Supply reported recently. The Skylark was the fourth in a series of preliminary test firings in preparation for the Royal Society's upper-atmosphere research in conjunction with the IGY.

The Skylark, powered by a Raven solid-propellant motor, was equipped with special installations for research. These included:

(1) Explosive grenades which were ejected at intervals above 100,000 feet. Ground equipment recorded the arrival of the sound waves; cameras to record the position of the flashes.

(2) Tin foil, released in two clouds above 100,000 feet. Tracked by radar, the "window" gave data on wind velocities.

(3) Equipment to detect presence of electrons in the ionosphere.

(4) Pressure gauges to determine ambient pressure at various altitudes.

Bomarc Equipment

A contract to install ground support equipment in the first Bomarc ground-to-air interceptor missile base has been awarded by Boeing Airplane Co., Prime contractor on the Bomarc weapon system for the USAF.

Designated as an employment & suitability test base, the facility is under construction at Eglin Air Force Base, located on the Gulf Coast of Florida. After the site has been prepared, the job of installing launchers, ground testing equipment and maintenance equipment will begin.

The Bomarc base's immediate importance lies in the fact that it will be used to check out the operating functions which might be incorporated in future similar bases throughout the country in a network of aerial defence missile stations. The USAF describes the Bomarc as a long range "area defence" missile capable of knocking down invading aircraft and missiles far from their intended target. This differentiates it from short range "point defence" missiles such as Nike.

It is understood that the U.S. is anxious to set some Bomarc sites in Canada.

Titan Guidance

A balancing system that will stabilize the Titan ICBM during flight has been developed by Honeywell. The system will stabilize the giant missile in much the same way that a human inner ear enables a person to maintain equilibrium.

The Titan system is described by Honeywell engineers as a gyro platform reference, and is one of three basic types of guidance systems being developed and produced by the firm's Aeronautical Division. The others are the "pure" inertial navigation system, such as the ISIP (Inertial System, Indicating Position) now in flight test under a Navy program; and the "aided" type of inertial systems being developed for use in supersonic aircraft.

The "inner ear" system consists of three super-accurate gyros known as HIG-4's (hermetic integrating gyroscopes), a programming device, autopilotpilot amplifier and associated electronics. The three gyros will be orientated to the three axes of flight—roll, pitch and yaw. Any deviation in the Titan's attitude in space will be detected immediately by the gyros and corrective signals sent to the mechanical portion of the missile control system.

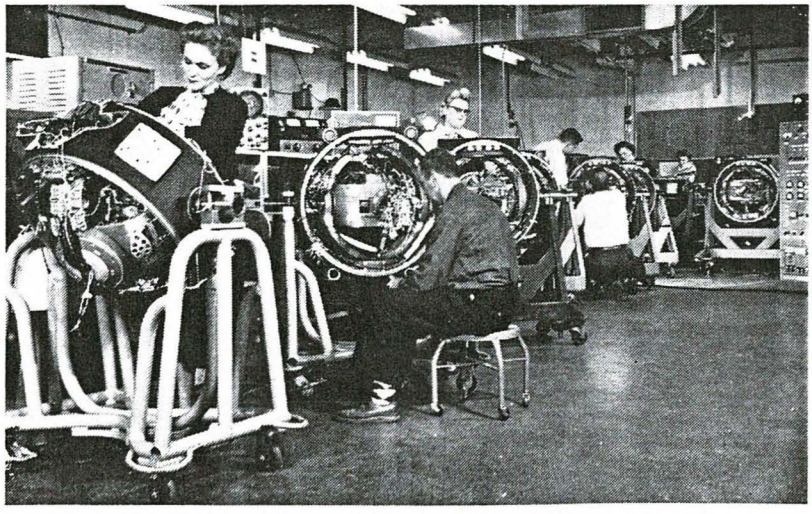
The autopilot reference unit will be strapped down to the missile frame so that it can detect any veering. A similar system is being manufactured by Honeywell for the Vanguard rocket which will launch the United States' earth satellites during the IGY.

Missile Master

The U.S. Army Air Defence Command has put the Missile Master into action in the North American air defense system. It is the first fully-operational system in the U.S. for controlling and coordinating electronically the fire of the Army's air defence weapons. The Missile Master installation will help defend the Washington-Baltimore government-industry complex against air attack.

Each Nike missile in the new system is controlled by local battery commanders who have access to all electronically co-ordinated information handled by Missile Master. Preselected targets in an attacking air fleet are assigned for destruction by Missile Master to individual batteries in the network.

Previously, antiaircraft batteries were controlled and co-ordinated by voice telephone from a central ARADCOM post where targets were plotted manually on an area map. Missile Master receives, correlates and transmits all information, presenting it on a TV-like picture tube in a simplified form. Operating independently, it can also co-ordinate the fire of Nike batteries in co-operation with the USAF's SAGE interceptor aircraft control system.



INERTIAL GUIDANCE SYSTEMS. Shown here are the inertial guidance systems being produced for the Thor ballistic missile by AC Spark Plug in Milwaukee, Wis. The guidance system depends on high precision gyroscopes for accuracy. It is self-contained and immune to jamming. The General Motors division has announced it is going into "volume production" of the systems.