

## Integrated-circuit flip-chips in small desk-top AM radio

As part of a full-scale invasion of consumer electronics, integrated circuits have established a beach-head in the table-top radio market.

The Philco Consumer Products Group of the Ford Motor Co. has announced a small battery-powered AM radio that contains two integrated-circuit chips. These contain all the active circuit elements and most of the passive components. Over 50 resistors, 26 transistors and two diodes are diffused on the silicon chips, which are flipped upside down and soldered to a board.

This development comes a matter of weeks after a similar announcement by General Electric. The GE radio, introduced as part of a clock-radio package, used only one integrated-circuit chip. The GE chip was mounted in a dual-in-line package.

The Philco chips are mounted on a small board, which is then epoxied to a larger board. The chips are covered with epoxy and capped with a flat metal can.

In both radios, only a few passive components, the tuning filter, the antenna, the speaker and bat-

tery are added to the integrated circuitry. The Philco radio can deliver 100 mW to its speaker.

RCA has announced the use of integrated circuits in television receivers. With three major electronic companies using these devices, observers foresee widespread use of integrated circuits in consumer products and equipment.

### University to analyze flying-saucer puzzle

Growing public interest in the sighting of unidentified flying objects (UFOs) has prompted the Air Force to engage a leading university to study the problem. Recently the Air Force has been criticized for refusing to make public the information it collects on UFOs at its Wright-Patterson AFB.

The Air Force has not announced the name of the university, but it said that the investigating team would include one physical scientist and one psychologist. The team will study about 100 sightings in great detail.

UFOs—popularly called flying saucers, because most observers who report them say they are so shaped—have been spotted by many technically trained people, including scientists, air pilots and engineers. Explanations by the Air Force of what the public is seeing have ranged from weather balloons to phenomena caused by swamp gas.

The Air Force said it would publish the results of the planned investigation, which is expected to cost about \$300,000.

### Sea-missile detector takes to its test bed

A complex radar system being developed to detect ballistic missiles

launched by submarines is about to enter the test-bed stage.

The prime contractor—Avco Corp., Electronics Div., of Cincinnati, Ohio—has set up the test facility at an undisclosed site not far from its plant. The aim is to integrate the new sea-warning system with the SAGE air-defense system.

Under an Air Force contract, Avco is to replace the present height-finder radar on SAGE—which is shaped something like the peel on a wedge of orange—with a dish-shaped radar antenna that will perform both search and tracking functions. A computer unit is to be mated to the radar to handle information on the submarine-launched missiles.

When completed, the new system will monitor the coastal waters of the continental United States from seven SAGE radar sites. Data-processing facilities at the sites will convert radar return signals into digital form for transfer to and display at the North American Air Defense Command headquarters, Colorado Springs, Colo.

"We have been at work on this important new defense system for more than a year," said O. E. Bassett, vice-president and general manager of the Avco division. "We received notification of the contract in December of last year, and up to now have received awards totaling \$12 million."

### Politics blamed for color TV discord

A recent meeting of the Comité Consultatif International des Radiocommunications in Oslo, Norway, has elicited charges of "political rigging and maneuvering" from some of the participants. It had been hoped that some semblance of agreement on color TV standards for Europe could be reached during the meeting. Instead, the proponents of competing systems stood pat, with the result that each country is expected to choose at its own discretion the color TV system it deems suitable.

What was particularly galling to the British and Germans, who wanted the PAL system adopted, was an eleventh-hour proposal by the French and Russians for adoption of the SECAM IV system as a



Flip-chips tumble into Philco radio.