

have occupied three to four weeks was completed in four hours. Previously, tests of this type were carried out using a van fitted with special receiving equipment which measured the signal strength of a transmitter at many selected points.

The recent tests modified this technique by employing a low-power transmitter fitted in the helicopter. The television station's antenna was used as a receiving aerial. Signals from the helicopter were logged continuously on a pen recorder, while the pilot's positional information was recorded on tape.

The aircraft flew at 60mph on a constant radius of two miles at an altitude of about 900 feet.

Simulates Data

The first communications data simulator capable of generating telegraph and high speed data test signals has been developed by the Westrex Communications division of Litton Industries, of 1 LeFevre Lane, New Rochelle, New York.

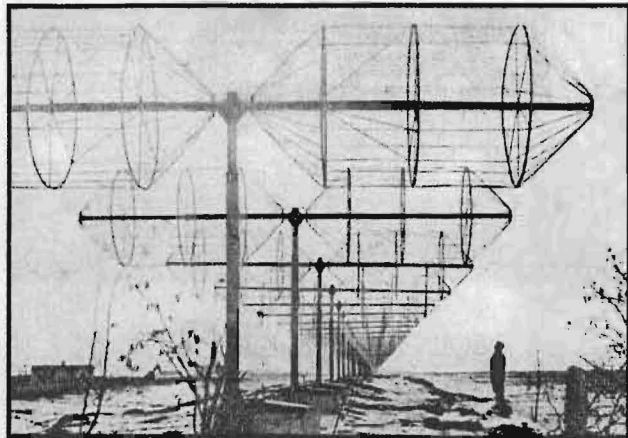
The compact Model 954 simulator is designed primarily for use in communications centres where both telegraph and high speed data signals are generated or processed. Test messages are generated externally by a punched paper tape reader, or internally by an electronic test message unit. Up to 49 per cent bias distortion can be introduced in the test message.

The punched paper tape reader permits telegraphic transmission speeds of up to 300 words per minute or eight-bit data speeds of up to 240 bits per second. The electronic test message unit has a fixed message which can be transmitted at speeds of up to 2400 BPS. Any 80-character test message may be generated by changing the electronic test message unit. A combination punched paper tape reader and electronic test message unit also is available.

TV Camera Target Material

A major technical advance in image-orthicon television cameras has been made by the British company that was responsible a few years ago for developing the highly successful 4.5-inch image-orthicon pick-up tubes.

This development comprises an entirely new type of target material which has been called Elcon (from "electric conducting")



This Russian radio telescope, being installed near Kharkov, U.S.S.R., measures 18,450ft x 18,450ft and occupies some 250 acres of land. Laid out like a giant "T," it will be able to "see" into deepest space.

and with which the operational lives of three-inch and 4.5-inch image-orthicon pick-up tubes can be greatly extended.

It has for some time been appreciated that a major problem with image-orthicon tubes using target materials such as enriched soda-glass is that ionic conduction inevitably leads to electrolysis of the glass and consequent long-term migration of sodium ions from the photo-cathode side of the target, producing undesirable effects including sticking, embrennen, marquage or stampatura.

With Elcon material the charge transfer process is by electronic rather than by ionic conduction, thus eliminating the undesirable effects.

The new target material has a guaranteed operational life of 750 hours, and lives as long as 3,000 to 5,000 hours have been achieved in field trials with pre-production samples. [English Electric Valve Co. Ltd., Chelmsford, Essex, England. In Australia The English Electric Co. Ltd., 365-375 Sussex Street, Sydney.]

Flight Recorder

Flight recorders of British design have been ordered by the United States Air Force for 42 of its Douglas Globemaster transport aircraft.

The £1 million sterling order is for the Midas flight

recorder which was developed by the British Royston Instrument Company, and is now being made under licence in the United States by the Lockheed Aircraft Service Company.

The recorder, which will be fitted in the tail section of the giant Globemasters, will record up to 15 hours of flight data on 86 aircraft and engine operations. It will also record voices; the unit includes a crash position indicator beacon to aid location and recovery of an aircraft after a crash at sea. [Royston Instrument Company, Canada Road, Byfleet, Weybridge, Surrey, England.]

Travelling Wave Tube

Mullard has developed a new travelling wave tube which has a saturated output power of 20 watts—approximately double that of previous telecommunication types. The firm says the tube permits either more communication channels or a longer distance microwave link.

The new wave tube operates in the frequency range 3.7 to 4.2 gigacycles per second. Complementary to it is a tube of the same power output, but covering the range 5.9 to 6.5 gigacycles. Both tubes are said to have extremely low noise levels. They use natural cooling if horizontally mounted and assisted cooling in the vertical position. [Mullard Aust. Pty. Ltd., 43 Clarence Street, Sydney.]



The Lockheed Company is currently looking at the possibilities of a 60-passenger air-bus, which they refer to as a "Metroplane." It could take off and land vertically, using its helicopter type rotor but travel the intermediate distance as a fixed-wing craft, with the rotor blades folded. Range would be in the 500-to-1,300-mile bracket.

Temperature Control

A small, low cost, self-contained temperature control unit incorporating a mechanical stirrer has been specially developed in Britain for the photographic and chemical process industries.

The unit is designed to be mounted across the corner of rectangular photographic developing or processing baths. It can also be clamped to the edge of a sink or other container to quickly and simply convert any vessel holding from 3-40 gallons into a thermostatically controlled processing bath. Temperatures between 15-95 degrees Centigrade can be maintained within a tolerance of 0.4 degrees. [Lee-Smith Photomechanics Ltd., Lyon Way, Hatfield Road, St. Albans, Hertfordshire, England.]

Continuous Copy Camera

A continuous strip copy camera is shutterless and operates by moving the film across a slit as the camera travels past the objects being photographed. The camera is believed to be the first of its kind by the makers who claim complete freedom from banding in the image, full control of exposure and high resolution.

Developed from an aerial reconnaissance instrument, it is expected to find use as a generator of simulator films, for copying large sections of graphic material and for roadway surveys, etc. Makers are Chicago Aerial Industries, 550 West Northwest Highway, Barrington, Illinois, U.S.A.

"Black Light" Insect Killer

Though it is well known that many flying insects are attracted to light, it is a relatively recent discovery that they are drawn by a light wave of 3,654 angstroms which is present in the ultra-violet range of the spectrum. This knowledge is put to work in a new insect-killing device called Luralight.

Luralights, it is stated, employ special bulbs, but as the so-called "black light" which they emit is invisible to the human eye, a little visible light is added to enable the operator to check that the bulbs are functioning. They are designed to project their rays in every direction, and to work—at night—for long periods with minimal attention and maintenance. Current consumption is low according to the British agent, Reeve Angel International, of 9 Bridewell Place, London, E.C.4, England.