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Rescue Beacon Pinpoints Crash Victims

First U. S. details of operation of a new radio rescue homing device to guide air rescue planes to personnel lost in an ocean or untraveled land area have been disclosed by Simmonds Aerocessories, Inc., Tarrytown, N. Y., American licensee for the equipment.

Developed in England by Ultra Electric, Ltd., the device consists of a lightweight battery-operated radio beacon designed to be attached to life rafts or May West flotation gear. Homing equipment is carried in air or sea search-and-rescue craft.

▶**Military Tests**—The device has been named Sarah, indicating initials of search and rescue and homing (equipment). Grumman Aircraft Engineering Corp. has contracted for flight test of the first sets Simmonds will make in this country (AVIATION WEEK June 8, p. 10). The device already has been evaluated by Royal Air Force and demonstrated for U. S. Air Force, Army Field Forces and the Naval Air Test Center.

The Sarah equipment was designed to meet these requirements:

• **Facilitate rapid,** accurate search over wide areas under all visibility conditions.

• **Provide positive,** continuous directional information with constant or increasing accuracy as the search plane approaches wrecked personnel to pinpoint their location within a few feet.

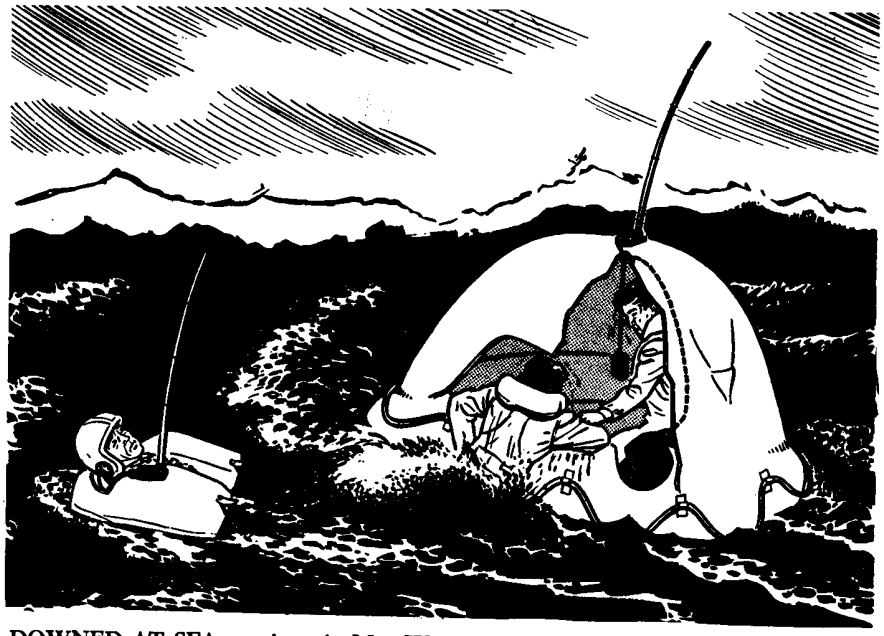
▶**66-Mile Range**—Equipment carried by the wrecked personnel includes the beacon, weighing 6 oz. with folding antenna; a 12-oz. speech modulator and receiver for two-way communication between wrecked personnel and plane, and a 32-oz. battery and 2-oz. cable. Total unit weight is 3¼ lb.

Beacon transmits a coded 243 megacycle pulse repeated in groups that may be spaced to permit identification of different downed personnel in the same area. This is radiated from the folding antenna, which when erected, transmits an omni-directional radiation in the horizontal plane and an inverted 30-deg. cone pattern vertically.

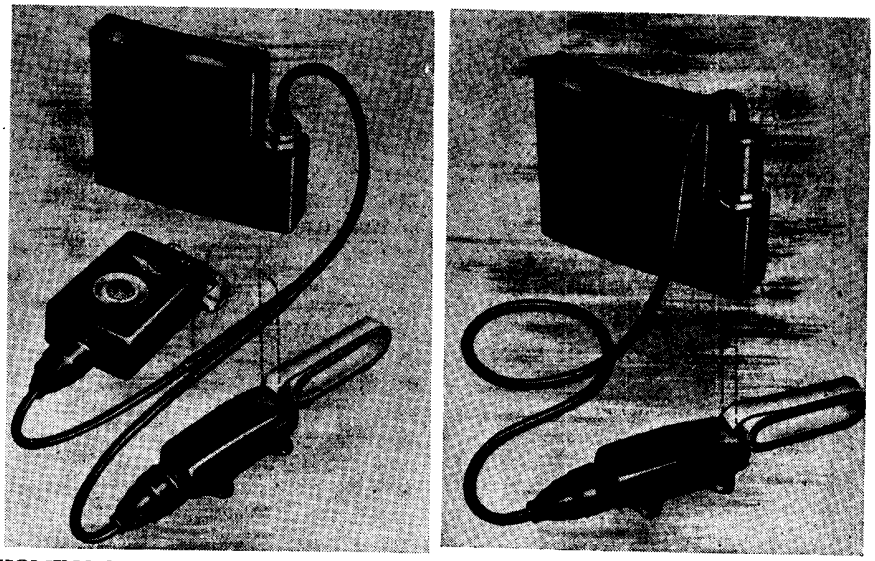
Peak power output of approximately 16 watts provides a maximum range of 66 mi. to a rescue plane at 10,000-ft. altitude and six mi. to a rescue ship, if shipboard receiver antenna can be elevated to a height of 30 to 40 ft. Battery capacity is adequate for 20 hr. of continuous operation.

At an altitude of 500 ft., the rescue plane can get a fix on the beacon that is accurate to within plus or minus 100 ft., adequate for pickup by helicopter or surface craft.

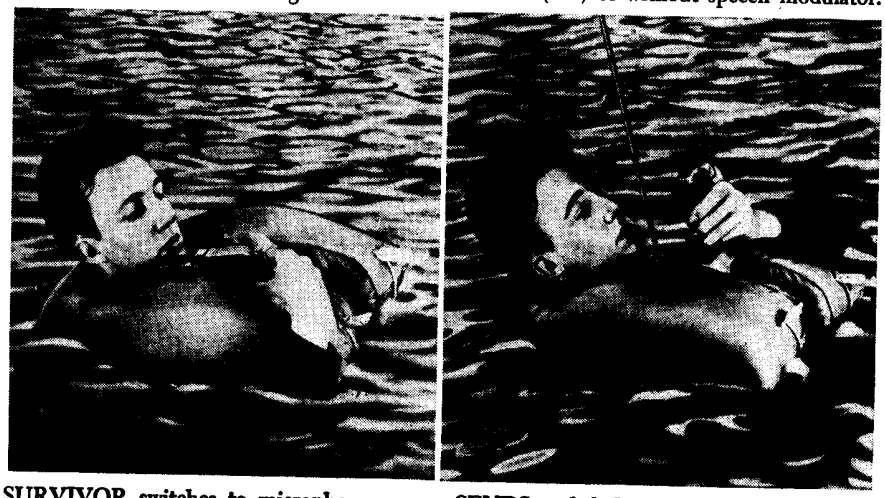
▶**Voice Transmission**—When the



DOWNED AT SEA, survivors in Mae Wests or on rafts signal search craft with Sarah.



HOMING UNIT and folding aerial are available with (left) or without speech modulator.



SURVIVOR switches to microphone . . . SENDS verbal directions to sighted plane.

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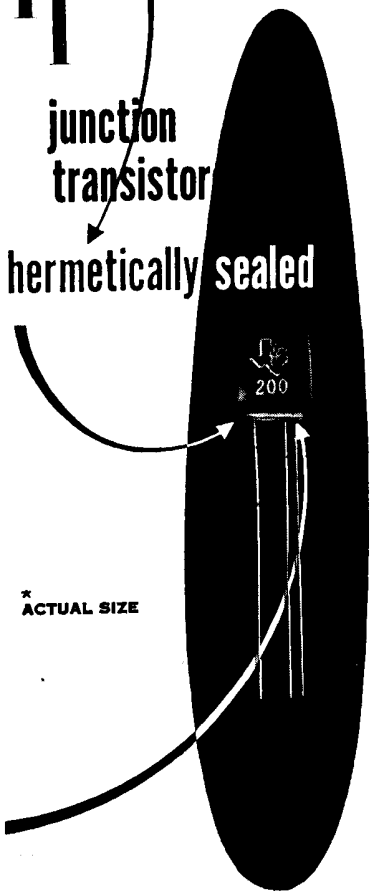

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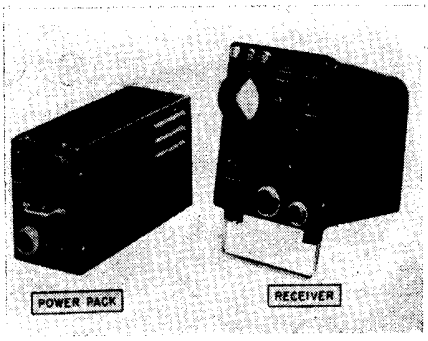

RECEIVING gear weight totals 24 lb.

wrecked person is within visual or audible range of rescue aircraft or ships, he may transmit voice by operating a three-position switch. However, peak power is about one-fourth that of the beacon mode and is only to be used when ranges are very short.

Selector switch is designed to require a definite effort to hold it in any position except beacon; and it is returned by spring force to that position as a safeguard against depression for long periods by confused or delirious wrecked personnel.

When the switch is turned to receive, a small signal from the receiver is sent on the beacon antenna, producing a display in the rescue craft showing the downed personnel are ready to receive voice instructions.

Current rescue receiving equipment carried by search plane or ship includes receiver, power pack, suitable search and homing and voice transmission antenna and interconnecting cable.

A new subminiaturized design being engineered will permit attachment of powerpack to receiver, making up a single unit. This will weigh 13 lb., compared to 24 lb. of present design.

▶ **Effective Search**—A cathode ray tube receiver shows the search area, with right and left antenna on the aircraft arranged so that beacon indications appear on either side of a vertical reference trace on the tube, providing directional information.

Right and left antenna patterns are inclined forward and overlap ahead, providing means for homing on the beacon as the airplane descends to search altitude. Other aids are an automatic scanning device and a stroboscopic control, which effectively shuts out all received signals except that selected for viewing.

When an airplane flies over the beacon, the signal suddenly vanishes due to the vertical radiation pattern of the beacon antenna—thus giving a fix.

A search plane, flying at 10,000 ft. and following the known bearing of the wrecked aircraft, would fly a parallel heading 50 mi. to one side of the downed plane's course and then return on the opposite bearing, flying 50 mi. to the other side.

Search thus would cover a band approximately 200 mi. wide on the course taken by the down plane, using maximum expected ranges of 66 mi. with a 16 mi. overlap at the center.

Canada Boosts F-86 Orders at Canadair

The Canadian government has placed orders for approximately 200 additional F-86 Sabre jet fighters with Canadair, Ltd., Montreal.

Part of the contracts were in final stages of negotiation when the U. S. canceled Beech T-36 trainer orders, including those placed with Canadair.

▶ **RAF Sabres**—One of the new Sabre contracts covers 120 Avro Canada Orenda-powered F-86s to replace a similar number of earlier planes diverted to the USAF. The other contract is for less than 100 General Electric J47-powered Sabres, which will be sent to Great Britain for use in the Royal Air Force.

A previous order for 370 Sabres for the RAF is being taken care of jointly by the U. S. and Canada, with the former paying for J47 turbojets and the latter for airframes.

▶ **Other U. S. Orders**—Canadian aircraft and parts plants still have U. S. contracts totaling $80 million, according to the authoritative Toronto Financial Post.

These include $7 million in Beech T-34 light trainers with Canadian Car & Foundry, Ltd., Montreal, and a number of L-20 Beaver liaison planes with de Havilland Aircraft of Canada, Ltd., Toronto.

Other awards have been placed with Sperry Gyroscope, Ltd., Montreal, for instruments; Canadian Pratt & Whitney, Montreal, for crankshafts and spare parts, and with the Aluminum Co. of Canada, Kingston, Ont., for aluminum forgings.

Talbott Pledges USAF Will Be 'Best'

Our Air Force "cannot and will not be second best," AF Secretary Harold E. Talbott has warned, because defeat is the fate of the second position in war."

Addressing a dinner honoring Leon Swirbul, president of Grumman Aircraft Engineering Corp., Talbott pledged that as long as he was head of the Air Force the U. S. aviation industry also would remain "best in the world."

"In my opinion," the Secretary said, "it is only to air attack that Communist Russia is vulnerable. Air alone offers the capability for effective action against the heart of the Soviet's war-making capacity."

▶ **Barrier to Attack**—Therefore, he

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