NEW TANK NAVIGATION DEVICE

Imagine driving a 50-ton "Centurion" tank through unfamiliar forests or over foreign terrain in thick, soupy fog or total darkness. Soldiers of Canada's NATO brigade in West Germany do this, thanks to "Navaid", a new navigational system designed and developed by the Canadian Army Equipment Engineering Establishment in Ottawa.

Lieutenant-Colonel A.C. Smart, project officer in charge of the design and development of several of the major components of the "Navaid" system at the electrical and electronics division of AEEE, said recently: "The principle it is based on is not new. Its unique aspect is an automatic plotter which shows at a glance the position of the vehicle and its direction of travel. A lighted arrow on a standard map changes direction every time the vehicle does, and moves across the map as the vehicle moves over the ground."

"Navaid" has been installed in the "Ferret" scout cars and Centurion tanks of the armoured components of the 4th Canadian Infantry Brigade Group in Germany, and in several other operational vehicles. This has greatly increased their ability to deploy in night operations and exercises under poor visibility.

INADEQUATE OLDER METHODS

In the past, ground forces have navigated by means of map-reading, in which locations of vehicles and troops are determined by their relative position to land marks and features indicated on a map. Their position is determined by a grid reference system imposed on all standard Army maps.

This system depends on the navigator being able to see and recognize landmarks, which is difficult or impossible when visibility is poor. Accurate navigation is hampered or prevented by darkness, fog or smoke, or in vehicles with closed hatch-covers. In all cases a detailed and accurate map is required, and in desert or arctic terrain, few landmarks or features are available for accurate map-reading. Moreover, vehicle commanders must spend a lot of time map-reading, which interferes with their duties and reduces the effectiveness of the fighting force.

ADVANTAGES OF NEW SYSTEM

The "Navaid" system allows the driver to guide his vehicle over any type of ground under any weather conditions or in total darkness. This enables the commander to devote his full time to the effective deployment of his force.

When equipped with other night-driving devices, such as infrared equipment, fighting vehicles may move freely without the restriction of weather or night conditions, making their contribution to operations, particularly night attacks, more effective and wide-spread.

This was determined in tests conducted by the United States Army at the Army Armour and Desert Training Centre at Fort Irwin, California. Tank companies, using tanks equipped with "Navaid", were able to respond quickly to commands for directional changes in night attacks. It also enabled them to reach their objectives with remarkable accuracy.

HISTORY OF PROJECT

The project was started in 1957 with the design of an engineering model constructed by the AEEE workshops. Limited field trials were then conducted by the Royal Canadian Armoured Corps School, Camp Borden, Ontario, in 1958. These tests proved that the system met the user's requirements.

A contract to produce seven development models based on the AEEE design was then let to Aviation Electric Ltd. of Montreal. The models were delivered in 1960, and after successful user trials, were adopted by the Canadian Army. Aviation Electric then engineered the equipment for production and manufactured the sets in use at present.

The first system consists of four major components – a gyro compass that seeks true north and sends out an electrical signal that represents at all times the direction in which the vehicle is pointing, a computer that receives direction signals from the compass and distance from the speedometer cable and converts this information into electronic pulses that represent changes in vehicle position, a receiver that shows the heading and an eight-figure map reference, and the automatic plotter.

All the "Navaid" components were of Canadian manufacture with the exception of the gyro-compass, which was developed for the United States Army and produced under licence in Britain.

Although the Canadian brigade is the only NATO force using "Navaid", several other member countries have tested it. Both Britain and the United States have conducted extensive trials and are displaying interest in adopting the device.

"One of the main advantages of "Navaid" is that it requires no training to operate it", says Colonel Smart. "It is entirely self-explanatory and any soldier could operate it."

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NEW HEAVY WATER PLANT

The following is a statement made by Mr. C.M. Drury, the Minister of Industry, in the House of Commons on February 23:

Honourable members will recall that, in December 1963, I advised the House of the Government's acceptance of the proposal submitted by Deuterium of Canada Limited to construct and operate a plant to produce heavy water in Canada. The Government undertook to underwrite the sale by Deuterium of Canada Limited of 1,000 tons of heavy water, to be produced at a rate of not less than 200 tons a year. Construction of this plant is proceeding on schedule.

Since that decision was taken, it has become apparent that the production capacity of the Deuterium of Canada Limited plant would be quite insufficient to meet the domestic demand for heavy water alone.

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