

system. A very accurate low-drift gyro was put into production, as was an integrator developed for use in complex systems. Delivery was maintained on the *R-Theta* navigation computer.

**Electronics.**—The continued production of heavy search and height-finding radars for improvement of Pinetree radar stations of both the Royal Canadian Air Force and the United States Air Force was one of the major items of the electronics and communication equipment program in 1959. An associated item was the air defence communication requirements for the eastern Ontario and southern Quebec portion of the Pinetree line. Fibreglass self-supporting radomes, to replace the original air-inflated radomes and air-pressurizing equipment were produced and installed, and production of selective aircraft identification equipment was initiated for part of the Pinetree line. Ground control approach radars were procured for use at RCAF airfields in Canada.

Consoles for the display of aircraft data at semi-automatic ground environment (SAGE) direction centres in the United States, and devices to provide an alarm signal for targets approaching the Distant Early Warning (DEW) radar line were produced in Canada. Two new types of operators' consoles for SAGE were also in the process of development for the United States Air Force. Contracts were placed for the leasing of communication facilities for both the RCAF and USAF in connection with the Pinetree and SAGE defence systems.

Search and attack sonars were a continuing production item in 1959, and an important addition to this program was the initiation of production of a Canadian-developed towed sonar. A preproduction program for a new type of sonobuoy was initiated, and interest was shown by the United States Navy in proposals to extend the life of the existing sonobuoy. A long-life moored sonobuoy was produced and tested in 1959 and considerable United States interest was also shown in this. Production of radiation monitoring equipment was initiated.

Production continued on ultra high frequency transceivers, identification, *Doppler* navigation, and instrument landing equipments. Procurement in connection with the *CF-104* aircraft program was initiated for the *NASARR* fire control radar, bomb and missile launch computers, optical sight requirements and TACAN navigation. Complex instrument, bombing, flight and anti-submarine tactical simulators were being designed and built in Canada, while a naval tactical trainer and an aircraft simulator were procured in the United Kingdom.

A major change in the responsibility for the operation and maintenance of the Mid-Canada radar line was negotiated and new contractors introduced on a cost incentive bonus plan for the first time in a major maintenance contract.

**Shipbuilding.**—Five destroyer escorts were completed and delivered in 1959, completing the second program of seven anti-submarine destroyer escorts known as the Restigouche class. Construction of the first of a third group of six destroyer escorts, a repeat of the Restigouche class, continued in the lead yard during the year. A contract was placed with a West Coast shipyard for construction of the hull portion of the second vessel of this class, the fitting-out of which will be done by a second West Coast yard. Contracts were placed for the majority of components for the repeat Restigouche program. Operations commenced at the central procurement agency under the supervision of the Department of Defence Production. This agency procures those items that are worked into all the vessels, allocates them to other shipyards as required, and handles the accounting for such bulk purchases.

Invitations to tender were issued to the Canadian shipbuilding industry for the construction of a naval tanker-supply vessel on a normal commercial fixed price basis. This was the first time that a major naval vessel was procured by this method. An acoustic calibration barge was completed and delivered to the Defence Research Board. There were 54 small boats under construction in 1959, varying in size from 27-foot whalers down to 14-foot dinghies. Forty-seven of these small craft were completed during the year.