AIR-TOWED SURVEY SOUNDER developed by Edo (Canada) Ltd. is shown being demonstrated recently. The equipment, which can be towed by a Bell G2 at 30 kt., has been sold to the DoT and to the Dept. of Mines and Technical Surveys. Edo says further development could lead to military uses.

Simulators for Italy

The government of Italy has ordered two F-104G simulators from Canadian Aviation Electronics Ltd. Value of the Italian order is estimated at approximately $2 million.

In a statement regarding the new order, CAE president James F. Tooley said the early delivery offered by his company was an important factor in the decision of the Italian government. Besides Canada and Italy, other NATO countries that have placed F-104 simulator orders with CAE include West Germany, the Netherlands and Belgium. About 30 simulators are involved at a total value of approximately $30 million.

Defence Contracts

Canadair was again the leader in the 1960-61 fiscal year among defence contractors. The public accounts for that year show that Canadair earned $87,732,125 from the Government, $3,672,027 more than in the previous year.

Orenda Engines stood second in defence earnings with a total of $34,853,265. Avro Aircraft, the leader for years until the Arrow was killed in 1959, dropped to ninth place with earnings of $8,533,580. In 1958-59 Avro received $95,870,173.

Other companies paid more than $5 million during 1960-61 were: Imperial Oil, $20,343,544; Lockheed, $13,933,772; Canadian Marconi, $12,899,385; Foundation Company, $11,886,037; Canadian Westinghouse, $10,633,810; Canadian Aviation Electronics, $10,184,511; de Havilland Canada, $8,227,667; Bristol Aero-Industries, $7,657,799; Aviation Electric, $7,357,443; Canadian Vickers, $6,797,144; Canadian General Electric, $6,116,704; Collins Radio, $6,099,147; Dell Construction, $5,731,763; Litton Industries, $5,709,209; Rolls-Royce of Canada, $5,677,735; Computing Devices, $5,070,222.

CDC Research Facility

A new aerophysics research facility based on the free flight range technique has been opened at Stittsville, Ont., by the Computing Devices of Canada Ltd. The facility was started in May 1961, the first shot was fired in September, and the facility was operational by the end of the year.

Free flight hypersonic ranges of the open and controlled atmosphere type offer a powerful research tool in the fields of aerodynamics and re-entry physics. Projectiles of a variety of shapes, travelling at velocities up to and exceeding 30,000 fps can be studied at close range and under controlled conditions.

This type of facility permits hypervelocity studies of impact and penetration, aerodynamic stability, drag and flow, radiation and communication in the plasma environment, and the development of materials, components and techniques for the exit and re-entry phase.

On board telemetry has been developed which withstands launching forces up to 200,000 g's. The environmental demands on this type of electronic circuitry impose the necessity for developing a whole range of new components and packaging techniques hitherto not available.

Since the flight time in a hypersonic range is in the order of a few milliseconds the extraction of all required data must occur within this short time period. Here again great demands are made on the ingenuity of the electronic engineers to develop sensors and recording techniques of high resolving power to measure the hypersonic flight characteristics to the orders of accuracy required.

When describing hypervelocity launchers it is important to define both mass and velocity. CDC's hypervelocity 1.5 in. gun has launched 42 grams at a velocity of 17,600 feet per second using helium as the driving gas. Using hydrogen with its lighter weight it is expected to launch the same mass from this gun at over 20,000 fps.

The tank range used with this gun is 85 ft. long and can be varied from three atmospheres to a vacuum equivalent to 250,000 ft. altitude. Spaced along this range and looking in through port-holes are arranged a variety of photographic spectroscopic, and solid state electro-optical measuring devices.

The free flight range is a very flexible facility and can be rearranged easily to accommodate a great variety of experiments to suit the requirements of the user. CDC, in addition to its own research, is offering the facility for contract work.

CL-44 Load Upped

The Flying Tiger Line and Seaboard World Airlines are obtaining modification kits from Canadair Ltd. in order to obtain a 5000-lb. increase in useful load from their Canadair CL-44 swing-tail freighters.

Incorporation of minor modifications to the CL-44 structure permits an increase in take-off weight from 205,000 to 210,000 lbs. This larger useful load extends the range more than 350 statute miles with all payloads, or raises the payload by about 4000 lbs. "for all distances greater than the maximum-payload range." Forty Fours now on the production lines at Montreal incorporate the modified structure.

Production Sharing

Canadian Marconi Co. and Collins Radio Co. of Canada Ltd. have received purchase orders totaling more than $200,000 to provide equipment for the C-130 Hercules. The Lockheed Aircraft Corp. said that it is ordering more than $135,000 worth of Doppler radar systems from Canadian Marconi, and more than $66,000 worth of UHF communications equipment from Collins of Canada.

Meanwhile, Canadian Marconi announced the designation of Lockheed Aircraft Service — New York, Inc., as a U.S. service centre for repair, modification and overhaul of the Doppler navigation systems. Under terms of the agreement, LAS-NY personnel at New York International Airport will be trained by CMC to use specialized test equipment and to

effect manufacturer-approved services.

CMC Doppler systems are in use by U.S., Canadian, and other NATO military forces, while commercial users in DC-8 and 707 jetliners include Alitalia, Irish International Airlines and Varig. All of these airlines are maintenance services customers of LAS-NY.

CAE in Joint NATO Bid

Canadian Aviation Electronics Ltd. will enter a joint bid with Le Materiel Telephonique of Paris, France, for contracts for simulators for anti-submarine warfare airplanes for NATO countries in Europe. If successful in their bid, the two companies will pool their technical resources to develop and manufacture the simulators in Montreal and Paris.

It is expected that the governments of France, Germany, Holland and other European countries will order the airplanes and a number of simulators will be required. Each simulator will consist of two main sections, one of which will provide a means of training the flight crew to fly and navigate the aircraft while the other will be used to train the tactical crew in the operation and strategical use of the sub-hunting equipment employed in the aircraft.

CAE has already produced an operational flight trainer and a tactical crew procedures trainer for the Argus aircraft for the RCAF, and is presently working on simulators for the F-104 both for the RCAF and NATO countries in Europe. LMT is producing simulators for the French-built Mirage III.

WEATHER RADAR actuators developed and produced by Found Bros. Aviation Ltd., have been added to four DoT-owned Decca MR-75 airport surveillance radars to convert them to weather radars. The Found Bros. actuator system tilts the rotating antenna at a rate of 1° per revolution. After 30 turns, antenna is returned to starting position.

GARRETT MANUFACTURING LIMITED's planned new building in Etobicoke township, near Toronto, is seen here as an artist's sketch. Main entrance is at the corner of the building, in the centre of the photo. The 27,000 sq. ft. facility will be built on a 3½-acre site just two miles away from the firm's present location in Rexdale. It will be ready for use this spring.

Arrow Wound Unhealed

The Arrow isn't fully paid for yet.

Ottawa sources say there will be a couple of hundred thousand dollars in the 1962-63 defence budget for the Arrow. This should clean up all the bills.

The latest accounting shows that the Government has paid out $407,638,339 on the Arrow program, including $27,439,905 for the Sparrow missile which was to have been the interceptor's main armament.

Smiths Sales

Since the war, Smiths, parent company of S. Smith & Sons (Canada) Ltd., has produced over 4500 autopilots of various kinds. Of these, the most successful has been the SEP 2. A total of 790 sets of this equipment have been sold to 45 different operators in such aircraft as the Comet 4, Britannia, Vanguard, Viscount, Argosy, Noratlas and Fokker Friendship.

Canada was the first country outside the U.K. to see the SEP 2 used when it arrived in the DoT's Viscount 737 which was delivered in 1956.

Contracts Awarded

Contractors awarded business in excess of $10,000 by the Department of Defence Production during the period January 1 to January 31, 1962, include the following. The list does not include orders placed by the Department outside Canada, or with other agencies or increases in orders placed earlier - nor do orders classified as secret appear here.

Names appearing in bold face are current AIRCRAFT advertisers.

Abercorn Aero Ltd., Montreal, $13,656 for aircraft seat pack containers.

BP Canada Ltd., Montreal, $1,414,500 for aviation turbine fuel during year ending March 31/63.

British American Oil Co. Ltd., Toronto, $460,881 for aviation turbine fuel during year ending March 31/63.

Canadair Ltd., Montreal, $21,146 for airframe spares.

Carriere & MacFeeters Ltd., Scarborough, Ont., $221,013 for overhaul of aircraft and miscellaneous electrical and ancillary equipments.

Collins Radio Co. of Canada Ltd., Toronto, $45,039 for spares for airborne transceivers.

Collins Radio Co. of Canada Ltd., Toronto, $13,242 for technical representative.

Computing Devices of Canada Ltd., Ottawa, $86,281 for overhaul of instruments and accessories.

De Havilland Aircraft of Canada Ltd., Downsview, Ont., $75,616 for static inverters for land vehicular navigational sets.

Fleet Manufacturing Ltd., Fort Erie, Ont., $18,700 for design and production of feed ring assembly for anti-aircraft gun.

Imperial Oil Ltd., Ottawa, $2,708,663 for aviation turbine fuel during year ending March 31/63.

Imperial Oil Ltd., Ottawa, $495,940 for aviation gasoline during year ending March 31/63.

A. V. Roe Canada Ltd., Toronto, $13,358 for portable magnetometers. ✓

A. V. Roe Canada Ltd., Toronto, $13,888 for ground speed interception computers. ✓

Royalite Oil Co. Ltd., Calgary, $160,875 for aviation turbine fuel during year ending March 31/63.

Shell Oil Co. of Canada Ltd., Toronto, $936,370 for aviation turbine fuel during year ending March 31/63.

Texaco Canada Ltd., Montreal, $2,540,600 for aviation turbine fuel during year ending March 31/63.

Wainwright Producers & Refiners Ltd., Calgary, $462,350 for aviation turbine fuel during year ending March 31/63.

Aviation Electric Ltd., Montreal, $12,728 for aircraft instruments.

Boeing of Canada Ltd., Arnprior, Ont., $10,000 for repair and overhaul of airframes and airframe components during year ending March 31/63.

Bristol Aero-Industries Ltd., $67,000 for repair and overhaul of aero engines and aero engine components.

Bristol Aero-Industries Ltd., $10,000 for repair and overhaul of aero and aero engine components, special investigations and technical studies.

Canadian Aviation Electronics Ltd., Montreal, $83,067 for contractor maintenance of tactical crew procedure trainer.

Cannon Electric Canada Ltd., Toronto, $14,815 for connectors.

Gensales Ltd., Malton, Ont., $17,524 for pyrotechnics.

Honeywell Controls Ltd., Toronto, $530,922 for field maintenance support spares for ground support equipment for automatic flight control system.

Imperial Oil Ltd., Ottawa, $54,184 for aviation fuels during year ending March 31/63.

Imperial Oil Ltd., Ottawa, $18,165 for aviation turbine fuel during year ending March 31/63.

Jarry Hydraulics Ltd., Montreal, $10,693 for aircraft spares.

Sperry Gyroscope Co. of Canada Ltd., Montreal, $26,524 for altimeters.

Superior Airways Ltd., Fort William, Ont., $11,000 for first line servicing and minor maintenance of aircraft during year ending March 31/63.

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