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MARINE PRODUCTS & SERVICES FROM CANADA











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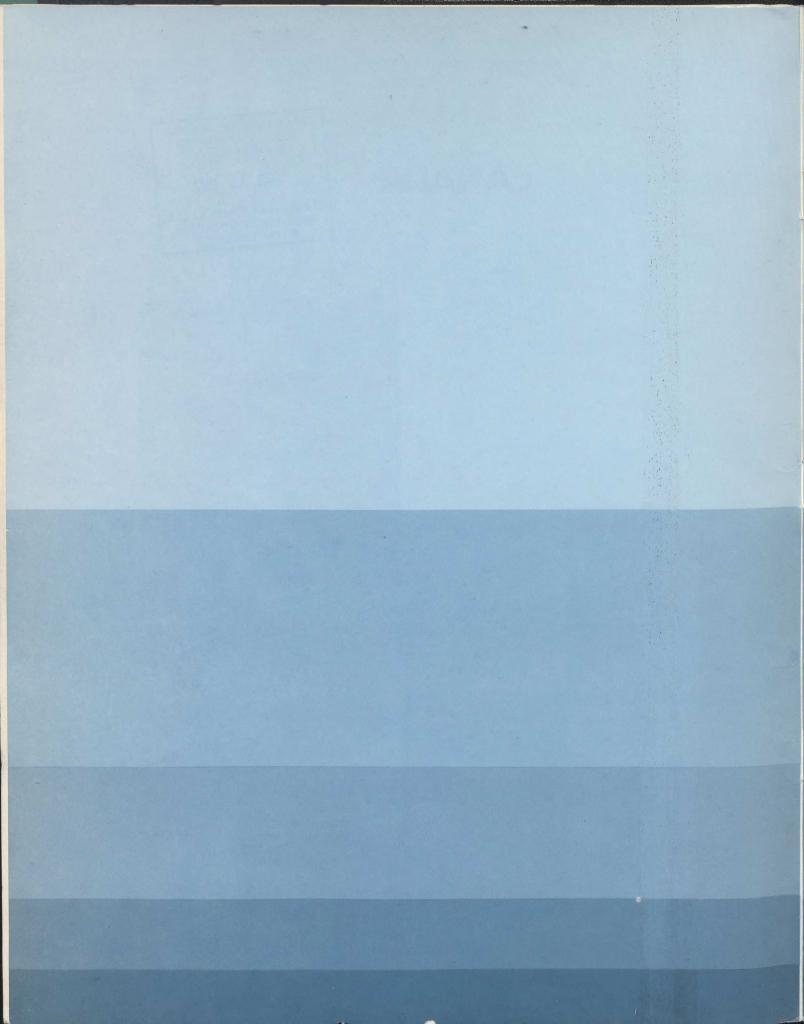
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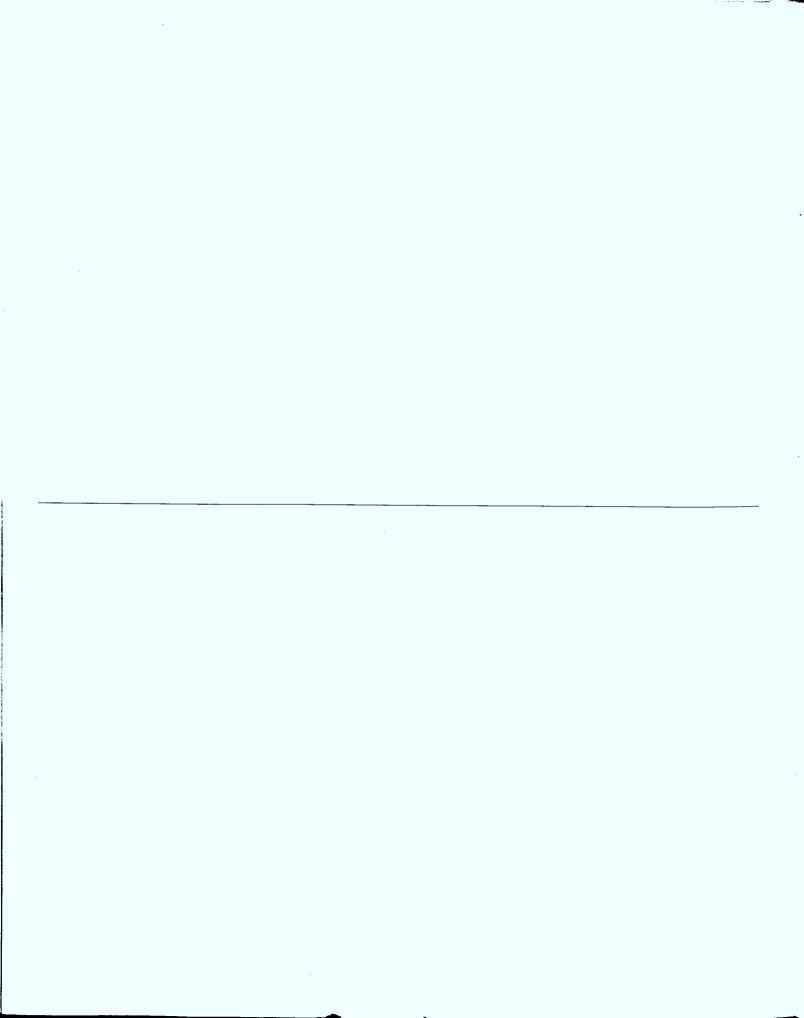








MARINE PRODUCTS & SERVICES FROM CANADA



"I rejoice . . . that we men of insular origin are about to recover one of our lost senses—the sense that comprehends the sea . . ."

Thomas D'Arcy McGee, 1864

More than 100 years ago, on the eve of Canadian Confederation, Thomas D'Arcy McGee drew Canada's attention to the seas which had played so important a part in the country's history. The voyages of Captain Cook on the west coast, the expeditions of Hudson and Franklin in the Canadian north, Cartier's and Champlain's explorations in the east—Canada's three oceans were the doors that opened up a new world. And to the Fathers of Confederation, they were a symbol of the country that was soon to stretch from sea to sea.

Today the oceans have a new importance in a world that has become aware of the potential—and the need to develop it properly—of this last unknown area of the earth. It is in this new world that Canadian equipment and expertise are making their mark. Durability and innovation have been characteristics of Canadian marine equipment developed to meet the rigorous conditions of Canada's continental shelves and Arctic seas, and solid professionalism the mark of Canadian scientists and technologists who have applied their knowledge and experience to the problems of ocean management.

Marine Products and Services from Canada, published by the Canadian Department of Industry, Trade and Commerce, describes the equipment and services of 57 leading Canadian companies with world-wide marketing experience. Its purpose is to provide

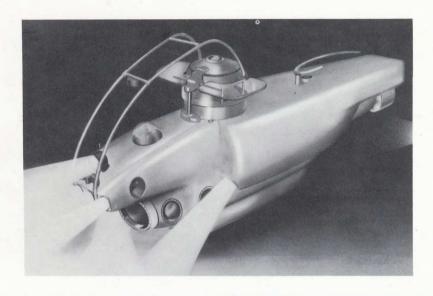
potential buyers with sources of supply and to introduce distributors to successful companies seeking representation in various parts of the world.

The products and services described here are only a sampling of what Canada has to offer the world's oceanographic community. Additional information may be obtained from the nearest Canadian government trade office or by contacting:

Marine Division
Aerospace, Marine and Rail Branch
Department of Industry, Trade and
Commerce
112 Kent Street
Ottawa, Ontario K1A 0H5, Canada

acces company limited

Suite 209 185 Bay Street Toronto 116, Ontario, Canada Tel: (416) 366-2914



The Narwal is Acces Company Limited's answer to the rigorous requirements of Arctic seismic exploration.

This manned submersible was designed for the Arctic Canadian Continental-Shelf Exploration Services Company Limited to fit into STOL aircraft so that a support ship is unnecessary. Operating from hole to hole under the ice, the Narwal acquires better-quality information at half the cost of an ice surface operation down to a depth of 1,000 ft. (304.80 m). Compact and self contained, it is equipped with nickel-cadmium batteries which give it greater range in the cold environment than similar size submersibles and reduce the charging time from eight hours to 30 minutes. Particularly important for under-ice work are the triple redundary navigation system and controlled under-ice escape system. Construction is by Perry Submersibles Ltd. of Toronto.

Length-19'6"(2.895 m) Diameter-48" (121.92 cm) Weight-9,400 lbs. (4.264 metric tons) Maximum depth-1,000 ft. (304.80 m) Crew-two Towable speed-up to 10 knots Speed: cruising-1 knot operating-2 knots Range-22 miles (35.406 km) Life support—48 hours for two-man crew Battery recharge-30 minutes Self-propelled on the surface with inflatable catamaran and outboard motor Note: Modular construction makes it possible to change the configuration on short notice. For example, the conning tower will be removed for under-ice work. It can be lengthened or shortened or a diver lock-out added.

Narwal Specifications:

annand steel

Truro, Nova Scotia, Canada Tel: (902) 895-4458) Telex: 014-49558



When the oil tanker Arrow spilled a large part of its load into the near-freezing waters of Nova Scotia's Chedabucto Bay in 1970, it was Annand Steel's Oil-Cat which came to the rescue quickly and effectively.

The Oil-Cat is an all-welded vessel of epoxy coated corrosion resistant high strength, press formed steel with unsinkable foam filled hulls. The oil recovery unit, the Slicklicker, can recover 40,000 to 50,000 imperial gallons (181,838.40 to 227,307 litres) a day in quiet or disturbed waters. It is attached to the catamaran by four heavy tensile bolts for easy removal. An optional debris recovery basket, which fits between the hulls, can collect up to 10,000 lbs. (45.359 metric tons) or 120 cu. ft. (3.398 cu m) of debris.

Ready for duty—Annand Steel's Oil-Cats are on the spot whenever quick, effective oil spill cleanup is needed.

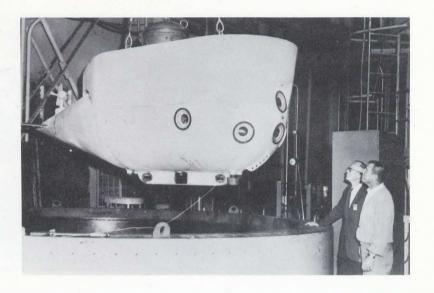
The Oil-Cat's twin jet propulsion drive with side thrusters provides safe shallow water operation with maximum manoeuvrability and eliminates possible propeller damage to other equipment. Mechanical, enclosed cable type jet thruster controls mean easy handling in open or closed waters. The cat, measuring 32 ft. (9.75 m) in length and 12 ft. 3 in. (4.42 m) in breadth, can be carried on the deck of any tanker, road transported by trailer or sling lifted by helicopter.

arctic marine limited

P.O. Box 321

North Vancouver, British Columbia, Canada

Tel: (604) 980-1123



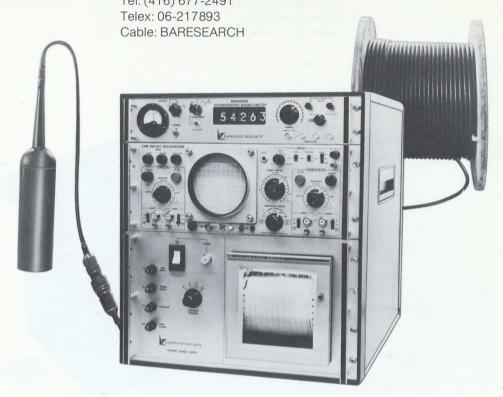
Arctic Marine Limited looks below the surface to offer the marine industry a complete professional service for the design, manufacture and operation of underwater systems.

This company manufacturers submersibles, underwater habitats and deck decompression chambers. It offers submersible services for underwater search and inspection, offshore geological surveys and underwater support of salvage. Arctic Marine is also a consultant for underwater and ocean engineering, including submersible and habitat design, and provides submersible services complete with crew and logistic support.

It's the Sea Otter—Arctic Marine's twoman submarine which the company charters around the world. The three-ton Sea Otter was designed to provide a safe, lowcost and highly mobile underwater work platform for scientific, offshore exploration and inspection projects. It is lightweight enough to be air transportable and can be handled easily from most surface support ships without lifting equipment. Also for export from Arctic Marine is an acrylichulled research submarine with a panoramic viewing feature which makes it ideal for a broad range of undersea assignments anywhere in the world.

barringer research limited

304 Carlingview Drive Rexdale, Ontario, Canada Tel: (416) 677-2491



Four years of reliable performance attest to the dependability of oceanographic magnetometers manufactured by Barringer Research Limited, proven expert in the field.

Barringer's magnetometer systems, which measure and record the earth's total magnetic field intensity, are designed for use in marine environments. A number of configurations are available to meet a variety of needs ranging from simple small boat salvage systems to the full-scale standard oceanographic package used by large ocean-going survey boats. Ancillary equipment, designed for specific needs, includes multi-channel chart recorders and custom-built data logging systems. Easy to install and operate, they come equipped with a maintenance manual and spare kits so that long-term projects can be undertaken without fear of failure.

This onboard instrument console and rugged, two-part marine towing unit are features of all oceanographic magnetometer systems from Barringer Research Limited.

b. c. research 3650 Wesbrook Crescent Vancouver 8, British Columbia, Canada Tel: (604) 224-4331 Telex: 04-507748 Cable: RESEARCHBC

B. C. Research, the technical arm of the non-profit British Columbia Research Council, bridges the gap between scientific knowledge and industrial applications.

The company conducts research and development for industry and governments in applied biology, chemistry and physics, engineering, economics, market and operations research and industrial engineering. Marine services include non-destructive, in-place testing of wooden marine pilings, treatment of wooden drydocks against marine borers, anti-corrosive coatings for submerged or wet steel and wood, water quality and pollution studies, economic and trade studies for ports, strain gauging and artificial methods for enhancing commercial oyster development.

B. C. Research uses its specially developed ultrasonic probe to accurately locate marine-borer damage, evaluate the extent of cross-sectional loss of wood and give a direct reading corresponding to the residual strength of the pile. Probe allows two men to examine more than 100 piles a day without removing fouling.

bel-aire shipyard ltd.

1667 Columbia Street North Vancouver, British Columbia, Canada Tel: (604) 985-8781



Shipowners have come to rely on Bel-Aire Shipyard Ltd.'s complete construction and repair facilities for trouble-free performance at sea.

Established in 1956, the company constructs and repairs all types of wooden and steel vessels—tug boats, chip barges, self-unloading cement barges, beach landing craft, commercial fishing vessels, pleasure craft and yachts. Bel-Aire can meet marine needs anywhere.

Shipyard facilities include a building berth which can handle craft up to 300 ft. (91.440 m) in length; marine ways; a marine elevator for vessels up to 150 tons and 100 ft. (30.480 m) long; a full range of service shops; and direct water and rail access.

Lawrence L Specifications: Steel construction Length—58 ft. (17.678 m) Breadth—22 ft. (6.706 m) Depth—12 ft. (3.658 m) Main engines—General Motors 12-V-71 tandem diesel 680 SHP at 1,800 rpm.

bennett pollution controls ltd. Suite 980 TUG NO. (1) 1055 West Hastings Street Vancouver 1, British Columbia, Canada TOW BAR Tel: (604) 682-1027 500 FT. BOOM BRIDLES SKIMMER TUG NO. (3) OIL BARGE 30 OIL SLICK VACUUM PUMP ETHAFOAM FLOAT ATTACHED TO BOOM WITH NYLON STRAPS TOW BAR FERRULES TUG NO. (2) SHELTER LITE COVER SEALING POST ANGLE X° FOR VARIOUS CURRENTS KNOTS SEALING STRIP EACH SIDE. 60° 45° 30° VINYL COVERED GALVANIZED STEEL CHAIN LINK FENCE. GALVANIZED EXTRA HEAVY STEEL PIPE BOOM POSTS LEAD STABILIZERS GALVANIZED STEEL ROPES, THIMBLE EACH END WITH SHACKLE AT ONE END ONLY

Whether it's an emergency offshore oil spill or a regular program of tanker berth protection and harbour cleanup, Bennett Pollution Controls Ltd. has the equipment for the job.

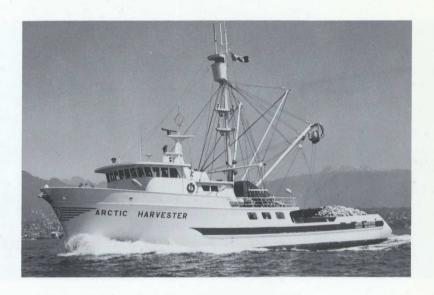
Bennett manufactures offshore, harbour and river oil containment booms and custom-designed oil removal equipment such as skimmers. This progressive and pollution-conscious company also provides a consulting service for oil pollution prevention including storage design, deployment techniques and emergency planning.

Basic equipment consists of six-ft. (1.829 m) offshore oil containment booms with a two-ft. (.610 m) freeboard and four-ft. (1.219 m) skirt, and three-ft. (.914 m) harbour or river oil containment booms with a one-ft. (.305 m) freeboard and two-ft. (.610 m) skirt.

Bennett sells and leases to international government agencies concerned with oil spill control and major oil companies around the world. This Bennett-designed system for offshore oil containment and removal, featuring the Bennett offshore oil boom (left), was used successfully in the Gulf of Mexico in currents exceeding two knots.

benson bros. shipbuilding co. (1960) ltd.

1705 West Georgia Street Vancouver 5, British Columbia, Canada Tel: (604) 683-8431



Situated on Burrard Inlet, one of the great natural harbours on the west coast of North America, Benson Bros. Shipbuilding Co. (1960) Ltd. specializes in custom-designed aluminum, steel and wooden vessels of all sizes and types. This Vancouver-based company builds fishing vessels, tugs, barges, derricks, work boats and pleasure craft. Typical vessels include the 87-ft. (26.518 m) Jose Narvaez, a single screw tug powered by a 1,450 hp electromotive diesel; Arctic Harvester, a 116-ft. (35.357 m) single screw steel fishing vessel with a refrigerated hold, and a 122-ft. (37.186 m) single screw steel purse seiner equipped with brine chilling facilities. The latter two are combination vessels built to take part in the Atlantic coast herring fishery and the world tuna fishery.

The 116-ft. (35.357 m) Arctic Harvester leaves Burrard Inlet on its way to the fishing waters of the open Pacific.

burrard dry dock company limited

P.O. Box 99 109 East Esplanade North Vancouver, British Columbia, Canada

Tel: (604) 988-2111 Tel: 04-508777

Cable: DRYDOCK VANCOUVER



Burrard Dry Dock Company Limited offers around-the-clock drydocking ship-repair service on the busy Pacific shipping lanes.

Burrard's shipbuilding berths can accommodate vessels up to 480 ft. (146.304 m) in length and 75 ft. (22.86 m) in beam and are serviced by two 45-ton fully revolving travelling Colby cranes. Construction ranges from simple scows for local tug and barge operations to highly sophisticated weather ships, oil tankers, icebreakers, passenger-automobile ferries, suction dredges, crane barges, destroyer escorts and acoustic research vessels. Burrard also specializes in increasing the size of existing vessels.

The 500-passenger, 110-car ferry M.S. Tsawwassen, which has seen active service on the British Columbia coast since 1960, is just one of many vessels that was constructed in Burrard Dry Dock Company Limited's 36-acre (14.569 hectares) North Vancouver shipyard.

Repairs to all types of vessels are handled in Burrard's three floating dry docks which have lifting capacities of up to 1,200 tons at its five outfitting and repair berths. Fully equipped plate, electric, pipe, blacksmith, joiner, sheet metal, boiler, pattern, rigging, paint and machine and engine repair shops guarantee expert repair service. Heavy lifts up to 300 tons and specialized repair services are also available.

camat international transportation consultants ltd.

Room 205 465 St. John Street Montreal 125, Quebec, Canada Tel: (514) 288-5119

Telex: 05-268591 Cable: CAMATCONS



Transportation consultants, naval architects and engineers—the staff of Camat International Transportation Consultants Ltd. provides a wide variety of services for the shipping and shipbuilding industries.

The company

- designs all types and sizes of dry bulk carriers, tankers, general cargo and container ships;
- designs special hull forms and marine propulsion prime movers;
- designs deck machinery and other ship equipment including special containment for the transport of liquefied natural gas;
- designs land-based and shipboard cargo-handling equipment;
- designs self-unloading bulk carriers;
- prepares contract plans, specifications and contracts for shipbuilding projects;

The ship: VLCC King Alexander the Great (230,000 dwt)
The design: Camat International Transportation Consultants Ltd.

- undertakes economic and feasibility studies for marine transportation projects;
- acts as owner's representative;
- supervises new construction, conversions and hull and machinery repairs:
- provides general superintendence of ships in service including voyage analysis and hull and machinery vibration surveys.

canadian diving services ltd.

250 East Esplanade North Vancouver, British Columbia, Canada Tel: (604) 987-4913



Canadian Diving Services Ltd. has broken a century-old tradition with its 26-lb. (11.793 kg) foam vinyl-lined reinforced fibreglass diving helmet. The company's versatile, lightweight replacement for the commonly used 60-lb. (27.216 kg) copper helmet can be worn with a wet or a heavy dry suit and allows the diver to work in comfort at depths down to 600 ft. (182.880 m). Other features include:

- complete free flow system for reduced noise, extra filtering
- finely balanced demand system for assured gas flow control
- sturdy Lexan vision port
- cam-lock closure which allows the diver to put on and remove the helmet by himself
- built-in headphones and microphone for trouble-free communication and optional TV camera attachment for deep sea work

Canadian Diving Services Ltd. is a member company of Oceaneering International, Inc. which offers a complete underwater service for the offshore industry around the world.

Dependable comfort with Canadian Diving Services Ltd.'s 26-lb. (11.793 kg) padded fibreglass helmet allows the diver to make unweighted 600-ft. (182.880 m) dives effortlessly and safely.

case existological laboratories ltd.

783 Cave Street Victoria, British Columbia, Canada Tel: (604) 386-2938

Telex: 044-8285



Case Existological Laboratories Ltd. provides a complete design, research, consulting and construction supervision service to the marine industry.

A company of diverse capabilities, vessel projects have ranged from design conversions, lengthening and catamarizing to provision of floating public aquariums. The company has developed computer programs for ship hydrostatic and stability calculations and programs designed to handle data produced by spectrophotometry and vibration analysis equipment. C.E.L.L. also offers a specialized maintenance monitoring service using spectrophotometry, vibration analysis and in-place balancing.

Case Existological Laboratories Ltd. prepared the design and working drawings used to catamarize the mono-hulled MV Island Princess. Trials before and after catamarizing included manoeuvrability, vibration and speed.

central design & drafting ltd.

Suite 417 276 St. James Street West Montreal, Quebec, Canada

Tel: (514) 845-9142 Telex: 01-26484 Cable: CENDRAFT

With affiliates in 14 countries, Central Design & Drafting Ltd. has established an international reputation for naval architectural, marine systems engineering and marine transportation services.

A typical Central Design innovation is the confreeze system for trawlers, seiners and onshore plants. It increases the daily freezing output, reduces installation and operating costs and frees large working areas on the processing deck. The system relies on the calcium chloride brine freezing process in which the fish are immersed in the brine. The unique feature is that the fish are packed in vacuum-sealed polythene bags before dipping and thus don't come into contact with the brine.

Company services include design and specification of fishing vessels, shore-based plants, ferries, tugs, barges, fisheries training and research and oceanographic research vessels; pre-investment studies of fishery enterprises; design and specification of the Ypass ship propulsion and steering system; specialized ship computer services; marine consultant services; shipbroking; design studies, engineering and operational research; optimization vessel studies.

comdev marine

Division of Computing Devices of Canada Limited P.0. Box 8508 Ottawa, Ontario K1G 3M9, Canada Tel: (613) 829-1800







From sea to sea . . . and in the Arctic as well, the ComDev Marine Division of Computing Devices of Canada Limited is one of the country's largest marine electronic navigation and survey companies.

A leading supplier of equipment and services for the world's ocean industry, ComDev Marine provides complete navigation and survey services which continuously position ships or aircraft at ranges up to 500 miles (804.670 km) from shore; conducts complete hydrographic surveys to produce bathymetric charts for commercial and defence purposes; surveys underwater pipe and cable routes; precisely positions and locates oil rigs for drilling; and deisgns comprehensive, unattended pollution monitoring systems.

ComDev Marine—serving the ocean industry in Canada and around the world.

Typical products, specially designed for a rapidly expanding resource industry, include PHI-tran, an automatic data acquisition system for resource protection and developments; the APRS 301 for recording and processing marine survey data; a left/right track indicator which enables the navigator to steer a parallel course to any pre-selected lane; a lane marker unit for hydrographic survey use; and a monitor recorder unit designed to record continuously both patterns of any Decca survey chain.

cove, hatfield & company ltd.

140 West 15th Street North Vancouver, British Columbia, Canada Tel: (604) 988-6191



Cove, Hatfield & Company offers experience combined with technical expertise to the world's marine industry. The company provides complete naval design, engineering and consultation services for all types of commercial floating equipment.

Cove, Hatfield projects range from shipbuilding and ocean-going tow-boats to special purpose vessels, ship conversions, refrigerated deep water fishing vessels, dredges, ferries, commercial vessels and barges of all types and sizes. Construction materials include steel, aluminum, fibreglass reinforced plastic and concrete.

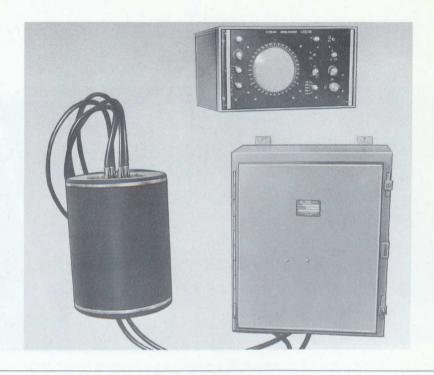
The company also undertakes technical and economic studies for specialized projects, tank testing and model research programs.

Trim and compact, these twin tugs reflect Cove, Hatfield's high design standards.

c-tech ltd.

Courtaulds Complex Montreal Road Cornwall, Ontario, Canada Tel: (613) 933-7970

Telex: 0181-538



C-Tech Ltd. owns and operates the only commercial, fully instrumented underwater acoustic test barge and shore-based laboratory in Canada. This facility is just one of many services offered by this employee-owned company to governments, industry and shipowners around the world.

C-Tech activities include the development, design and fabrication of equipment for low frequency electronics, underwater electro-acoustics and the physics of sound in the sea. Products include digital depth sounders, verifying depth digitizers, omni and net sonars, electronic transducer scanners and underwater acoustic transducers.

This is the model LSS-30 omni sonar from C-Tech Ltd.

r. b. h. cybernetics patents & processes ltd.

P.O. Box 4205, Postal Station A Victoria, British Columbia, Canada Tel: (604) 383-7255, 658-5713



Oil in the wrong place is pollution, but the oilerator—developed by R. B. H. Cybernetics Patents & Processes Ltd.—puts it where it belongs.

One of the most effective devices in the fight against oil pollution, the Slicklicker can separate and pick up as much as 45 imperial gallons (204.568 litres) a minute and handle up to 1,000 barrels a day. It uses a preferential wetting process that automatically separates the oil and water at the water surface so that only oil is picked up even in three-ft. (0.914 m) seas (water content is as low as two per cent). This 900-lb. (408.231 kg) machine can be adapted for any low freeboard boat or trucked or airlifted to a spill site. It has proved effective on spills of any viscosity oil and, because it can pick up oil-water emulsions, it is also being used in many refinery operations.

The Slicklicker, developed by R. B. H. Cybernetics Patents & Processes Ltd., gets a chance to prove what it can do during tests in heavily industrialized Hamilton, Ontario.

davie brothers ltd.

61 Commercial Street Levis, Quebec, Canada Tel: (418) 837-5827

Telex: 011-3733 Cable: AGEMAR



Quality at competitive prices is a way of life at Davie Brothers Ltd., the oldest shipyard in Canada.

Shipbuilder since 1829, the company has a long and proud tradition of custom wood and steel construction and repair. This tradition is reflected in the craftsmanship that goes into every detail of construction for more comfortable, better looking and sturdier craft.

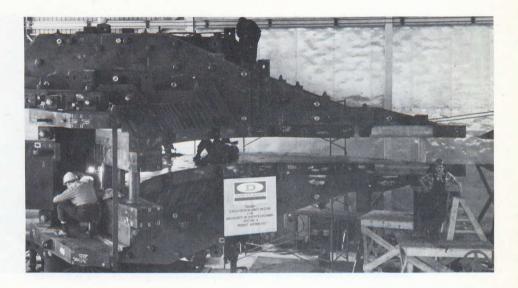
Davie Brothers builds scows, fishing vessels including seiners, draggers, long liners and trawlers, pilot launches, work boats, sailing and pleasure craft and all types of small vessels. Maritime Agency Inc., the parent company, also has for lease a fleet of coastal and ocean-going vessels reinforced for navigation in ice.

This steel pilot launch reflects the care that goes into the design and construction of every Davie Brothers vessel.

davie shipbuilding limited

P.O. Box 130 Levis, Quebec, Canada Tel: (418) 837-5841 Telex: 011-254

Cable: DAVIESHIP Levis



Davie Shipbuilding Limited has been one of Canada's leading shipyards since 1882. This proud tradition is reflected in Davie's extensive production facilities, just east of Quebec City on the St. Lawrence River. There, locomotives, mobile and gantry cranes service a 3,000-ft. (914.40 m) wharf frontage which includes two year-round dry docks, five building berths and a covered slip. Research and testing facilities, a vital part of all Davie operations, include a laboratory for destructive and non-destructive testing of materials, an hydraulic cascade system to observe and analyze velocity pressure and flow conditions and a workshop for the scale model production of new models. Rigid and uniform standards are applied to both in-plant production and bought-out items.

This is one of the six sectors of the main magnet for the world's first third-generation cyclotron built by Davie Shipbuilding Limited for the University of British Columbia, Vancouver, Canada.

FROM DAVIE YARDS FOR

- marine needs: offshore oil drilling rigs; port cranes; tugs; ship construction and repairs; towing and salvage services
- nuclear projects: dump tanks; calendria shells; helium gas holders
- petrochemical industry: pressure vessels; accumulators; fractionners; distillate strippers; reactors; separators
- pulp and paper industry: digesters; barking drums; sulphur burners; dryer shells; slice flow eveners; rolls
- mining industry: kilns; ingot cars; crushers; dryers; furnaces; ladles; shaking screens; graders
- railways: tank, hopper, coal, flat and gondola cars
- hydro-electric projects: hydraulic turbines; intake and diversion gates; pipeline and penstock; stoplogs
- telecommunications: radar antennas; wave stocks

dominion welding engineering co. ltd.

P.O. Box 850 Keele Street North Maple, Ontario, Canada Tel: (416) 889-4861 Telex: 02-29992



Total environmental systems designed and manufactured by Dominion Welding Engineering Co. Ltd. meet marine needs in a wide variety of ways.

DWE builds hyperbaric and portable decompression chambers, experimental diving chambers which simulate diving conditions to 61 atmospheres' pressure, undersea research chambers, under-ice laboratory habitats, automatic chamber control systems and oil recovery systems.

The oil recovery unit, the Slicklicker, is a mobile, vessel-mounted oleophilic belt skimmer which can recover up to 98 per cent of bunker C oil—40,000 to 50,000 imperial gallons (181,838.400 to 227,307 litres) a day—from oceans, harbours and rivers. For ponds or settling basins, the Slicklicker comes mounted on a self-propelled or towed pontoon craft; for heavy duty work, on a rugged fibreglass barge, trailerable for fast land delivery. It can be equipped for drum collection or, with a transfer pump, for discharge to a float containment, bag or barge.

When it comes to harbour cleanup, Slick-lickers, manufactured by Dominion Welding Engineering Co. Ltd., rank with the best. This one is helping the Great Lakes Port of Hamilton, Ontario, keep its harbour waters clean.

eastech limited

Division of FPE—Pioneer Electric Limited P.O. Box 700 Truro, Nova Scotia, Canada Tel: (902) 895-2877

Telex: 014-49553

Turning new ideas into new products is Eastech Limited's way of meeting the needs of the international oceanographic community.

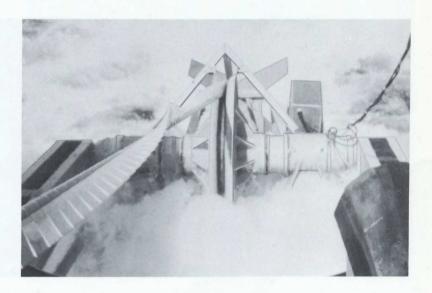
Among Eastech's products are low torque stainless steel swivels for deep ocean moorings. The swivels can be used in any application requiring long life and high reliability under adverse conditions, and their corrosion-free construction allows inspection of interiors.

Two models are available with working loads of 2,000 lbs. (907.180 kg) and 6,000 lbs. (2,721.540 kg) respectively.

fathom oceanology limited

863 Rangeview Road Port Credit, Ontario, Canada

Tel: (416) 274-1551 TWX: 610-492-2539



Superior engineering enables Fathom Oceanology Limited's integrated underwater deep towing systems to carry submerged oceanographic equipment at a speed and depth that allows fast and complete ocean data acquisition.

Simple to install, operate and maintain, Fathom's compact system features Flexnose fairing which provides the ultimate in depth for a given wetted cable length by reducing drag to a minimum. Other components include a patented winch for multi-layer cable storage, an automatic passive cable tension stabilizer, electrical signal takeoff without slip rings, custom-designed towed body, a floating saddle assembly and optional high deck mounting.

Fathom products also include gravity corers, submarine antenna towing systems and multiple cable bundlers.

Fathom Oceanology Limited's unique integrated underwater deep towing system has been used for everything from subbottom profiling to continuous water sampling for hydrocarbon analysis and salinity and depth measurements.



ferrocon industries international ltd.

Board of Trade Tower Suite 1012 1177 West Hastings Street Vancouver 1, British Columbia, Canada Tel: (604) 685-8394

Cable: FERROCORP



It began in 1945 with Irene.

Irene was a 165-ton motor sailor built of thin slabs of mortar reinforced with superimposed layers of wire mesh and reinforcing rods. Ferro-cement made construction so simple, compared to conventional wood or steel, and required so little maintenance during Irene's years of service that it was soon put to commercial use on a wide scale.

Ferrocon Industries International Ltd., incorporated in 1968, is expert in thin-shell ferro-cement construction for pleasure boats and industrial marine systems alike. Shipbuilder and ship consultant, Ferrocon specializes in ferro-cement barging systems up to 250 ft. (76.2 m), miniships to 3,000 tons gross, ocean research vessels and platforms. It also provides a complete design, engineering and construction consulting service for ferrocement builders around the world.

At the Ferrocon shipyard, rugged reinforced mortar slabs are placed in position as another ferro-cement vessel nears completion.

the foundation group of companies

1 Yonge Street

Toronto 1, Ontario, Canada

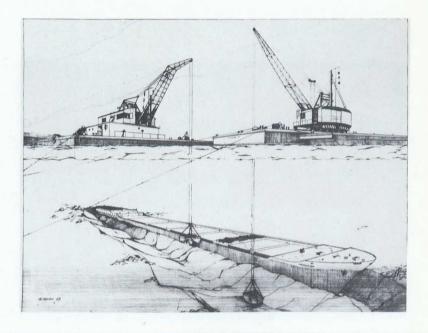
Tel: (416) 361-4611 (The Foundation Company of Canada Limited)

361-4722 (FENCO)

361-4670 (Foundation-Comex)

Telex: 02-2814

Cable: FOUNDANENG



Marine construction, oceanographic consultant services, geotechnical engineering, professional diving equipment and personnel—in these areas The Foundation Group of Companies, through subsidiaries, shares a broad range of marine experience and technical knowledge.

Services include:

- from The Foundation Company of Canada—construction of all types of harbour facilities, caissons, marine substructures and foundations; navigation aids; salvage of vessels and burial of wrecks
- from The Foundation of Canada Engineering Corporation Limited (FENCO)—study and design of marine terminals and offshore development; studies of advanced transportation systems for the Arctic; investigations of ice-affected waters
- from Foundation-Comex—industrial diving equipment and personnel
- from Geocon Ltd.—geotechnical engineering studies on and offshore.

The Foundation Company of Canada Limited, a member of Canada's most complete construction company, buries the wreck of MV Tritonica.

garrett manufacturing limited

255 Attwell Drive Rexdale, Ontario, Canada Tel: (416) 677-1410

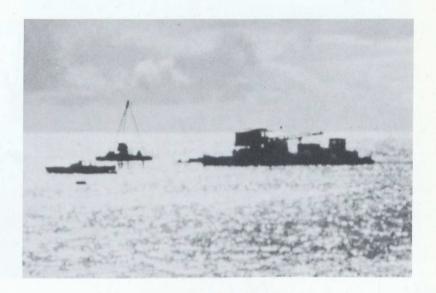
The Marine Systems Group of Garrett Manufacturing Limited offers the diverse ocean industry a wide range of products and services for many maritime needs:

- underway replenishment—Garrett's SPV replenishment system, a traditional product line, now incorporates a powered tri-drum unit. The company provides complete design, manufacture and support of ship-to-ship and shipboard-handling systems.
- special subsystems—Garrett produces special systems with electrical, mechanical, hydraulic or pneumatic drives featuring tension, velocity or positional sensing and control by electronic or mechanical means.

- water jet propulsion systems—the patented Garrett aquajet, equipped with a weed cutter and 360° steering nozzle, is very effective in areas of heavy marine growth.
- shipyard equipment—this includes automatic mooring winches, cargo winches, windlasses, capstans, deck cranes and special shipboard cargohandling systems.
- engineering studies—Garrett offers a professional consulting service in underway replenishment, shipboard materials handling, machinery design and systems management.

geocon ltd.

14 Haas Road Rexdale, Ontario, Canada Tel: (416) 743-3031



Geocon Ltd. is a geotechnical engineering company that provides field operational and professional consulting services in three main areas:

- applied soil mechanics, foundation and earthwork engineering, geological studies and geotechnical processes
- overwater site investigations and ocean geotechnics
- land-based drilling, soil sampling and special site investigation testing Making this possible are:
- a staff of experienced geotechnical engineers, geologists and drillers
- company-owned and operated drilling and sampling equipment and soiltesting laboratories
- a patented stationary cable rig that maintains a drill platform at a fixed distance above the ocean floor regardless of vertical deck movement

The result is:

• a highly specialized capability that has played a vital role in a wide variety of marine projects around the world. An overwater soils investigation project in Praia Bay, the Azores, uses guyed towers designed and operated by Geocon Ltd.

georgetown shipyard

P.O. Box 220

Georgetown, Prince Edward Island, Canada

Tel: (902) 892-1952 Telex: 014-4451



Owned and operated by the Prince Edward Island Industrial Corporation, Georgetown Shipyard specializes in fishing vessel design, construction, repair and refitting. This modern shipyard can process 1,000 tons of steel a year.

Vessels up to 200 ft. (60.960 m) OA, including tugs, barges, tanks, fishing and coasting vessels, are constructed under cover in a 200 ft. by 80 ft. (60.960 m by 24.384 m) fabrication shop serviced by fully equipped machine, pipe, electrical, carpenter and mould loft areas. Vessels can be fitted with the owner's choice of equipment, and engines and winches are sized to meet individual fishing requirements. All are constructed to Canadian Board of Steamship Inspection, Lloyds or American Bureau of Shipping Classification requirements.

Georgetown's Lady Maria is one of the largest, most powerful and sophisticated midwater trawlers constructed in Canada. It measures 128 ft. (39.014 m) OA, has 1,700 hp and a million-lb. capacity (453,590 kg).

german + milne

Suite 401

Dominion Square Building Montreal 110, Quebec, Canada

Tel: (514) 866-7373 Telex: 05-268812 Cable: VALVE



For 50 years, the name German + Milne has meant innovation plus dependability in all areas of marine design and consulting.

German + Milne relates marine transportation problems to the total environment and designs marine systems in terms of shore-side systems, docks, terminals and pipelines. The wide diversity of ship designs, most of them prototypes in their class, the farreaching program of research and development, the use of computer techniques-these are the hallmarks of a company that offers a highly specialized service for the marine industry. Included are marine (especially Arctic) transportation studies, design and systems analysis, detail working drawings, feasibility and economic studies, ship appraisal and brokerage, owner's representation, ship construction supervision, ship and cargo surveys, business data processing, model testing, research and development.

Built to German + Milne design specifications, the icebreaker Louis St. Laurent tackles northern Canada's ice-clogged waters. German + Milne also designed the hydrographic survey vessel CCGS Hudson, veteran of the full-scale study of the continental waters of North and South America.

In the increasingly important area of Arctic transportation, German + Milne also has access to the well-organized environmental data of Marsaw Investments Ltd., an associate firm, and the expertise of Northern Associates Reg'd. and Procom Systems & Computations Ltd.

guildline instruments, ltd. Churchill Crescent

Churchill Crescent
Smiths Falls, Ontario, Canada
Tel: (613) 283-3000
Cable: GUILDLINE SMITHS FALLS



Guildline Instruments, Ltd. is a new name to the oceanographic community but not to metrologists around the world who rely on its precision electrical and temperature-measuring instruments and standards.

Guildline's newest product is a highspeed temperature, salinity and depth measuring system. Rugged and dependable, it uses a square wave direct current technique which measures temperature to 0.02 °C accuracy, salinity to 0.04 ppt and depth to 0.2 per cent of full scale. Two salinity modes, for open oceans or restricted areas such as estuaries, are added features.

Compact, lightweight and inexpensive, the basic single probe can be packaged in several towing body configurations for horizontal or hybrid profiles.

This general-purpose STD probe is one of five models designed by Guildline Instruments for the utmost in versatility and dependability.

halifax shipyards

Division of Hawker Siddeley Canada Ltd. P.O. Box 640 Halifax, Nova Scotia, Canada

Tel: (902) 423-9271 Telex: 014-422827 Cable: HALSHIP



The shipyard that constructed the Sedco floating oil rigs—largest of their kind in the world—has reason to be proud of its capabilities.

At Halifax Shipyards, where a sheltered deep water location favours year-round test programs, engineering expertise is applied to specific marine needs. The result is a highly diversified product line where quality means customer satisfaction. The company constructs and outfits offshore exploration and production rigs, platforms and associated workboats. An example is the Sedco rig, a tripod-shaped, semi-submersible offshore drilling vessel which can drill in the floating position in depths up to 600 ft. (182.880 m) and is designed to withstand the most severe maritime conditions. Other madeto-order commodities include an extensive series of large, stern-ramped commercial fishing vessels.

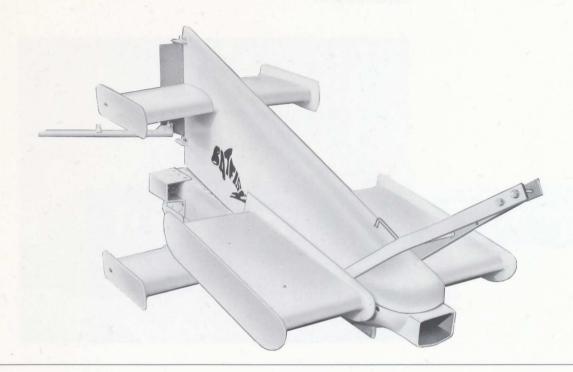
Largest of their kind in the world, Sedco floating sea-coastal oil rigs measure 325 ft. (99.060 m) from the bottom of the three 80-ft. (24.384 m) diameter footings to the top of the drilling derrick. The rigs are 343 ft. (104.546 m) long and 380 ft. (115.824 m) wide, have a light ship weight of close to 11,000 tons.

hermes electronics limited

Esson Road

Dartmouth, Nova Scotia, Canada

Tel: (902) 466-7491 Telex: 014-422744 TWX: 610-271-1973



Hermes Electronics Limited is backed by 20 years of solid engineering experience and the proof is in the wide range of precision electronic oceanographic equipment and deep sea moored buoy systems manufactured at the Hermes plant for distribution around the world.

It's a proud record of achievement: more than 100,000 acoustic, seismic and bathythermographic sonobuoys and, in larger buoys, one, two and three-stage automatic mooring systems which can carry a payload of up to 2,500 lbs. (1.133 metric tons) and moor to depths of 21,000 ft. (6.4 km). Coupled with these buoys is a full range of acoustic, HF, VHF and UHF data link systems and radar transponder which serve as navigation aids.

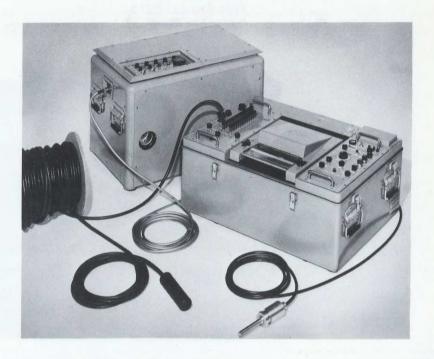
Newest product is the Batfish, a controllable towed body for fisheries, seismic and seabed survey work.

Batfish provides the scientist and ocean engineer with an economical method of obtaining high-density oceanographic data when small-scale and rapid changes are important. Depth pattern of this underwater towed vehicle is continuously controlled from the ship.

huntec ('70) limited

1450 O'Connor Drive Toronto 374, Ontario, Canada Tel: (416) 751-8055

Telex: 06-22797 Cable: HUNTOR



In a country like Canada where almost a quarter of the continental area lies under water, it's not surprising that Huntec ('70) Limited has become an expert in sub-bottom profiling.

Huntec's modular Hydrosonde marine seismic profiling systems simultaneously record the returns from low energy/high frequency and high energy/low frequency sources to provide near sub-bottom resolutions accurate to one foot (.305 m) or better to a depth of 1,000 feet (304.8 m)

Very high resolution is the result of Huntec's new precision transducer which produces a non-ringing halfsine wave acoustic pressure pulse of 150 micro-seconds duration. This represents at water velocity, a capability of resolving layers less than one foot thick. The receiver unit consists of a keying programmer, signal processors (highly versatile seismic amplifiers with a 20 kHz bandwith and time variable or automatic gain) and a recorder.

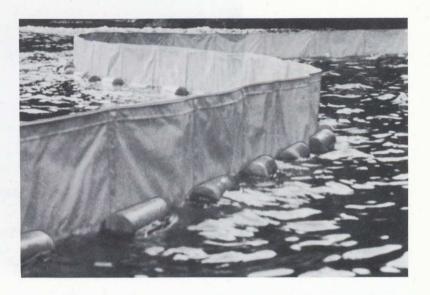
Sturdy and lightweight, the Hydrosonde 2A system uses high energy sound pulses to map sub-bottom geological horizons. System consists of acoustic source, transmitter, hydrophones, receiver and signal processor.

The recorder's servo drive system allows precise recording of the seismic data on magnetic tape for off-line recovery and further processing.

hurum shipping & trading company ltd.

Board of Trade Building
Room 222
300 St. Sacrament Street
Montreal 125, Quebec, Canada
Tel: (514) 842-5211

Telex: 05-25365 TWX: 610-421-3213 Cable: TALASHIP



Hurum Shipping & Trading Company Ltd. has developed a new weapon in the fight against oil spillage pollution in harbours and open waters.

It's the Flexy oil boom made of PVC nylon fabric and virtually indestructible by seawater, oil chemicals or detergents. The boom is constructed in 100-ft. (30.480-m) lengths which can be joined together to form an oil tight barrier of any desired length. Designed so that even two men can join and position it, the Flexy boom meets the need for quick action against accidental spills. Because of its stabilizing equipment, which places it at a constant 24 inches (60.960 cm) below and 12 inches (30.480 cm) above the water despite changing wave movements, the boom avoids any overspill even in heavy weather. And, after use, simple cleaning with brooms and scrapers removes all foreign matter.

Hurum Shipping also trains Flexy oil boom users, provides consulting assistance for installation and supervises oil spill recovery programs. Both ends of each Flexy boom length are equipped with five wood toggles placed 18 inches (45.720 cm) from the end which match five eyelets on the next section, giving an oil tight overlap of 18 inches (45.720 cm). For extra strength, the chain at the base of each section can be shackled to the adjoining one.

international hydrodynamics company ltd.

145 Riverside Drive North Vancouver, British Columbia, Canada

Tel: (604) 929-2391 Telex: 04-508698 Cable: THINKDEEP



Field experience plus engineering expertise equals practical solutions to ocean tasks, and International Hydrodynamics Company Ltd. has the record to prove the equation.

The company, established in 1964, is the only submersible manufacturer in Canada and one of the few in the world with the capability to design, build and operate these vessels, their tools and support facilities. Submersibles are vital to ocean exploration and exploitation, and HYCO products—the Pisces models 1, 11 and 111, the SDL-1 submersible diver lock-out and the Hudson handler—have become synonymous in this industry with rugged endurance, safety and modest operating costs.

From the translucent waters of the Caribbean to the ice-packed Arctic, HYCO-manned submersibles are meeting the demands of an increasingly complex ocean industry. The SDL-1 submersible diver lock-out shown here offers unprecedented flexibility for a wide variety of commercial, scientific and military uses.

Ideal as underwater work platforms for offshore petroleum exploration or marine construction, the Pisces class features high payload or lift capacity and task-designed tools and manipulators. Workhorse of the fleet is the first generation (1966) Pisces 1 operating to 1,800 ft. (548.640 m). Pisces 11 and 111 operate to 3,500 ft. (1.066 km) and the SDL-1 diver lock-out to 2,000 ft. (609.60 m). The fourth Pisces operates to 6,600 ft. (2.0 km). Pisces work partner is the Hudson handler, a portable, self-contained, self-powered modular barge which maintains, launches and recovers the submersibles. CSI approved for open ocean work, it has fuel and support facilities to sustain 10 men at sea for 30 days.

jackson-talbot & associates ltd.

208 Pemberton Avenue North Vancouver, British Columbia, Canada

Tel: (604) 985-7481 Cable: TALNAVARK



Specialization takes on a new dimension at Jackson-Talbot & Associates Ltd., marine engineering and economics consultant. At Jackson-Talbot, vessel design can begin with a computeraided economic analysis of various modes of marine transportation to determine which would be the most effective. Company consultants, drawing on the best that modern technology has to offer have won recognition in all their fields, from naval architecture and marine engineering to vessel condition and draft surveys, marine transportation and operation prognoses, financing, rigging, cranage, cargo handling and marine computer services.

Innovation is a company byword: flush weather deck hatch covers for ocean service, controllable pitch propellers on coastal vessels, heavy fuel installation systems for diesel engines on coastal vessels, the most extensive pusher tug/barge system and the largest self-loading/unloading log barge in Canada are examples.

The good looks and easy manoeuvrability of the Haida Transporter, a railcar self-propelled barge, reflect Jackson-Talbot's expertise.

The company also undertakes new vessel construction supervision and will act as owner's representative for deep sea vessel overhaul, maintenance and repair.

kenting limited

700 - 6th Avenue Southwest Calgary 1, Alberta, Canada Tel: (403) 266-7061



Arctic marine seismic surveys have confirmed Kenting Limited's reputation for technical skill of the highest order.

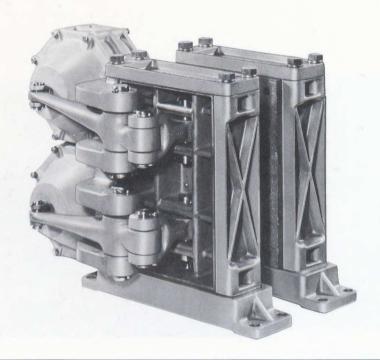
Kenting provides field services management, consulting and interpretation services for all aspects of mineral and oil exploration and engineering geophysics under any climatic conditions. Its latest success story was the 60-day Polarquest '71 project which produced 10,000 miles (16,093.40 km) of reflection seismic data-twice as much as expected-between the islands of the Canadian Arctic. It was Kenting's seismic crew and instruments that established the technical and economic feasibility of marine seismic surveys even under the most severe ice conditions using modified equipment.

Other Kenting projects have ranged from tidal power feasibility studies to pre-structural engineering for supertanker wharfs and harbour-dredging operations.

Kenting Limited helped prove that marine seismic surveys are possible in iceclogged waters, a fact that will cut years from the exploratory stages of Arctic operations.

j. kobelt manufacturing co. ltd.

235 East 5th Avenue Vancouver 10, British Columbia, Canada Tel: (606) 879-2968 Cable: KOBTROL



J. Kobelt Manufacturing Co. Ltd. specializes in precision control equipment for the ocean industry.

This manufacturer designs and produces pneumatic and mechanical remote control systems and components for marine propulsion controls and winch installations; pneumatically operated disc brakes for prime movers such as ships' propeller shafts, power saws and cable winches; pneumatic cylinders and gearbox control units; single lever throttle and gearbox controls for marine engines and specialized custom-designed pneumatic and mechanical control equipment.

Here is one of a range of Kobelt pneumatic single lever control heads, manufactured in bronze with stainless steel hardware, which gives single lever control of ships' propulsion machinery. It is part of a total pneumatic control system that provides automatic pitch compensation to prevent engine overload due to the CP propeller. Simple to install and backed by a one-year guarantee, these systems operate on 100 psi air pressure and are correctly timed to perform all functions automatically. They can be arranged to provide single lever control from up to five remote stations.

lasalle hydraulic laboratory ltd.

0250 St. Patrick Street LaSalle, Quebec, Canada Tel: (514) 366-2970

Telex: 01-26453

Cable: LASYDRO MONTREAL



When a group of hydraulics and fluids mechanics specialists form a company, the result is an expert consulting service on the hydraulics of port layouts, breakwater design, beach erosion and nourishment, wind and tidal currents and their effects on pollution and maritime navigation, protection of coastal facilities and ice movements in mass circulation currents.

This is the impressive list offered by LaSalle Hydraulic Laboratory to prime consulting engineers and owner authorities. The company operates a 30,000-sq. ft. (2.787 sq. km) laboratory equipped with two pumping stations, an 80 by 75-ft. (24.4 by 22.8 m) wave tank, a 16 by 60-ft. (4.877 by 18.258 m) wave tank and a two by 120-ft. (.610 by 36.576 m) wave flume. In-house support services cover the complete range of electronic recorders and photographic equipment.

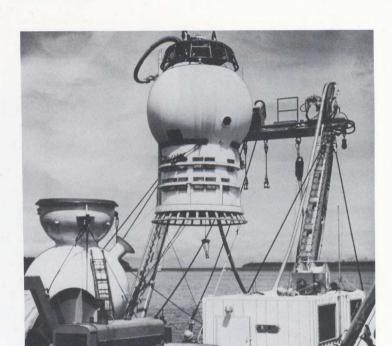
This hydraulic scale model study of the entrance to Eastern Canada's Port of Matane determined the breakwater cross-sections and layout for effective protection against waves.

Typical projects have included model studies to determine breakwater cross-sections and layout for the Gulf of St. Lawrence Port of Matane; a model which reproduces the tidal currents in the Port of Vancouver and serves as a permanent guide to present and future port facility development; precise model ship movement studies to specify breakwater protection for a container ship terminal in Halifax harbour; and an analytical study of the wave erosion forces on Lake St. John in central Quebec which provided beach nourishment procedures that have revitalized the recreational areas.

lockheed petroleum services ltd.

1 Grosvenor Square New Westminster, British Columbia, Canada

Tel: (604) 524-4451 TWX: 610-962-3959 Cable: LOPS



Lockheed Petroleum Services Ltd. is the only company which has successfully built and tested a manned atmospheric subsea system for producing and servicing oil wells at depths exceeding 1,000 ft. (304.80 m).

This system, a logical extension of Lockheed's ''state of the art'' ocean research and development program, combines standard oil field techniques with manned atmospheric pressure chambers to place production facilities on the ocean floor. Wellhead hardware is designed and built to customer specifications and installed and serviced by Lockheed crews operating from LPS submersible diving capsules.

Specialist in the design, manufacture, installation and servicing of all kinds of subsea petroleum completion and production equipment, Lockheed also provides engineering and consulting services and has full access to the technological resources of the Lockheed Aircraft Corporation.

Prior to subsea tests, the utility capsule is joined to the wellhead cellar. At left, the flowline bundle arcs out of the cellar in a radius designed to accommodate pumpdown tools. The flexible design of Lockheed's subsea petroleum system minimizes the cost-water depth ratio and opens up the possibility of economical exploitation of the continental shelves.

marine industries limited

Sorel, Quebec, Canada Tel: (514) 743-3351 Telex: 01-26136

Cable: MARINDUS



M.I.L. is one of the biggest shipyards in Eastern Canada, boasts one of the largest marine railways and is equipped with a lateral transfer grid for simultaneous ship construction.

M.I.L. builds and repairs vessels of every type—from giant floating cranes to railway car ferries and missile-equipped frigates.

M.I.L. pioneered the building in Canada of all-aluminum welded covered hopper cars and is a leading manufacturer of flatcars, gondola cars and custom-designed railroad cars.

M.I.L.'s heavy machine ship features a stress-relieving furnace which can handle assemblies weighing as much as 100 tons at 1,800°F (982.2°C).

The 400-ft. (121.920 m) icebreaking roll-on/roll-off John Hamilton Gray carries railway cars, automobiles and passengers between the provinces of New Brunswick and Prince Edward Island on Canada's eastern coast.

M.I.L. can handle eight ships at a time on its marine railway and sliding berths.

And M.I.L. has completed a modernization and expansion program at its Sorel, Quebec shipyard that permits assembly line ship construction.

marine services & systems

Division of Canadian Vickers Ltd. 5000 Notre Dame Street East Montreal 404, Quebec, Canada Tel: (514) 256-2651 Telex: 01-20287 Cable: VICKERS MONTREAL



In 1949 Canadian Vickers Ltd. of Montreal set up a centralized drawing office primarily to produce working drawings for the Royal Canadian Navy. Subsequently the company began to undertake practically all contract design and working drawings for major RCN construction and conversion programs. When Canadian Vickers ended shipbuilding activities in 1949, the marine drawing and naval drawing offices were combined to form Marine Services & Systems and the organization became a company division.

Today, the organization provides virtually every type of service associated with naval or commercial marine shipbuilding. These range from conceptual and basic design to contract design drawings and specifications, working models and mock-ups, quality control and assurance, weight control, feasibility studies, market research,

Model of main machinery space and funnel intakes and uptakes, just one of the many services provided by the Marine Services & Systems Division of Canadian Vickers Ltd.

value engineering analysis and management control systems. Special areas of expertise include car/passenger ferries, fishing vessels, passenger/cargo ships, hydrographic survey vessels, lake freighters, icebreakers, floating docks, dredges, tugs and cable-laying vessels.

maritime industries limited

445 West 6th Avenue Vancouver 10, British Columbia, Canada

Tel: (604) 879-4681 Telex: 04-51403 Cable: MARITAIR



The concept of packaging all propulsion, steering and fuel tanks into a portable bolt-on-deck unit is beginning to make a lot of economic sense to more budget-restricted work barge and ferry fleet operators. And they can thank Maritime Industries Limited for the idea.

Maritime Industries designs and manufactures a wide variety of heavy duty outboard propulsion systems and bowthrusters for a broad range of marine applications. They are built to cover the power range from 80 hp to 400 hp and are supplied in configurations from simple L drives for bowthruster-type use to full 360° steerable, retractable, self-contained propulsion units.

These propulsion units eliminate the need for expensive engine room and steering system installations because the power plant, propeller shaft and steering system is incorporated in the package. New construction costs for scow type load carriers are reduced while increasing payload per invested dollar. When twin installations are used remote controls are available.

Portable, and with 170° propelling leg elevation, they are ideal for remote area operations as they may be completely maintained onboard or ashore without drydock support. This means savings in time and money during seasonal peak work loads.

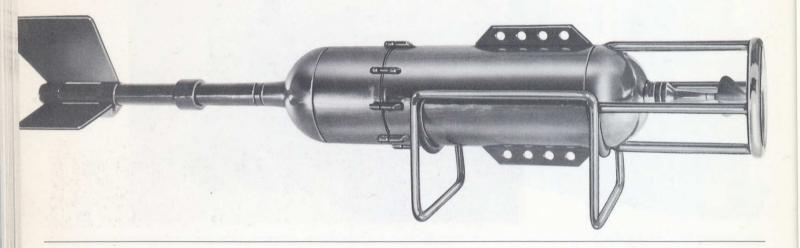
The company also manufactures 80 to 120 hp, 360° positioning units for floating cranes, dredgers, pontoon handling and other waterborne equipment. The bowthrusters deliver up to 9,000 lbs. (4,082.31 kg) of thrust.

neyrpic canada ltd.

0250 St. Patrick Street LaSalle, Quebec, Canada Tel: (514) 366-2464

Telex: 01-26453

Cable: NEYRCAN MONTREAL



A record of high performance even under the most exacting conditions has won a Canadian-made C.M.D.R. digital current-recorder a well-earned reputation for dependability among users of precision measuring equipment all over the world.

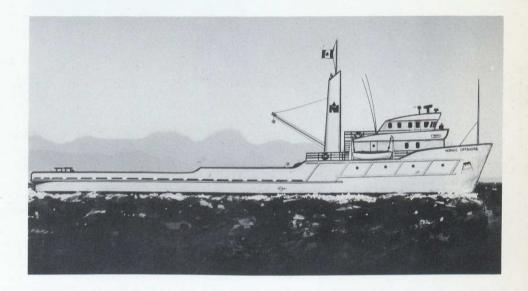
Developed by Neyrpic Canada Ltd., this instrument records velocity and direction of currents on a standard 1inch (2.540 cm) punched tape using a pure binary code. Information is directly readable for instant checking of the instrument, directly decodable by computer without special readers or code translators. Self contained, it features plug-in units which eliminate complicated servicing and the need for adjustments at sea. It has a long period recording capability (up to four months for the standard model). And the cost of operation per returned bit of information is very low.

The self-contained C.M.D.R. digital current recorder model 148 can record continuously up to four months' velocities and directions of water currents in seas, lakes or rivers.

nordic offshore services ltd.

Suite 103 1199 West Pender Street Vancouver 1, British Columbia, Canada

Tel: (604) 681-7277 Telex: 04-51470



Service when, where and how it's wanted—Nordic Offshore Services Ltd. offers the international oil industry a complete range of facilities to meet its offshore production needs.

Nordic vessels supply, tender, loacate and tow offshore drilling rigs. Two classes of vessels are available: 184 ft. by 45 ft. (56.083 m by 13.716 m) with 5,300 brake hp, and 175 ft. by 38 ft. (53.340 m by 11.582 m) with 3,280 brake hp. Both feature:

- ice-strengthened construction to ABS Ice Class A standards
- length/beam/freeboard ratio and specially designed hulls for maximum stability under extreme maritime conditions
- compliance with the latest anti-pollution controls

The larger vessels are also equipped with controllable pitch propellers and travelling gantries.

From Canada to the world—Nordic offshore supply vessels offer complete servicing facilities for offshore drilling rigs around the world.

ocean science associates ltd.

Suite 215 Duke Street Tower, Scotia Square Halifax, Nova Scotia, Canada

Tel: (902) 423-3559 Telex: 014-422828

A newcomer to the Canadian oceanographic community, Ocean Science Associates Ltd. was formed in 1971 to apply the research efforts of eight research institutions in the Halifax area to a wide variety of marine projects anywhere in the world.

Backed by solid professional, scientific and engineering talent, Ocean Science Associates brings a co-ordinated approach to the problems of investigating, planning and managing new marine enterprises. Services include oceanographic consulting, environmental surveys and forecasting, aquaculture consulting and development and pollution surveys. It also has a manufacturing capability for customengineered oceanographic equipment, telemetry and hydraulic system from the design to the production stage.

pengo hydra-pull of canada limited

P.O. Box 638 Woodstock, Ontario, Canada Tel: (519) 539-4843



Pengo Hydra-Pull of Canada Limited is one of the world's oldest and largest manufacturers of tension-stringing equipment for power line erection and it applies this same expertise to solving rope and cable-handling problems in the marine industry.

Pengo cable-handling equipment, especially suited to hydrostatic winching and traction drive systems, uses a unique hydraulic power design which provides precision control whether the cable is delicate, high tension, large diameter or synthetic rope. Rugged and dependable, Pengo cable-handling systems are used for coaxial laying, research vessels and fishing boats, towing, mooring, pipe pulling, anchor handling, dredging, undersea mining, offshore platforms, salvage operations and undersea construction. A custom-design facility is also available for special cable-handling projects.

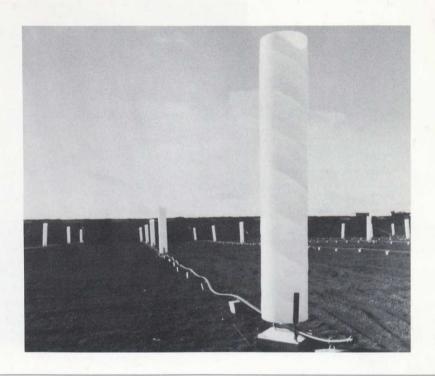
A record of rugged reliability has won Pengo Hydra-Pull's cable-handling systems steady customers in every area of marine work.

Of special interest are Pengo single wheel traction drive equipment for handling life support umbilicals, complete manned capsule, launch and recovery systems and special purpose winches through the 300,000-lb. (136,077 kg) operating levels. The company also manufactures a complete line of reels, reel carriers, wire and synthetic rope, sheaves and grips.

polcon corporation

Suite 200 1550 de Maisonneuve Boulevard West Montreal 107, Quebec, Canada Tel: (514) 931-3876

Telex: 05-268681



Proper management of the world's water has become one of the most pressing needs in today's heavily industrialized, pollution-conscious society. And Polcon Corporation is helping to meet it.

Polcon designs and manufactures a broad range of environmental control systems. These include aerobic systems for the biological treatment of industrial and waste water (featuring the company's non-corrosive Helixor for maximum mixing and aeration action), water quality improvement in natural and man-made impoundments, eutrophication reversal, ice prevention, wave attenuation, silt prevention in harbours and hydraulic barriers for the containment of floating matter.

The company carries out a comprehensive research and development program in this regard.

This 18-inch (45.720 cm) diameter extruded polyethylene tube provides the sanitation engineer with the most effective and economical waste treatment unit. In Regina, Saskatchewan, Canada, 207 10-ft. (3.048 m) Helixors, distributed uniformly through the aerated lagoon, provide 85 per cent treatment efficiency.

port weller dry docks limited

St. Catharines, Ontario, Canada

Tel: (416) 934-2581 Telex: 021-5136

Cable: PORTWELLERDOC



Situated on the Welland Canal, the gateway to Canada's upper Great Lakes and the St. Lawrence Seaway, largest inland waterway system in the world, Port Weller Dry Docks Limited builds, repairs and outfits all types of ocean-going and lake vessels to the maximum size—730 ft. (222.504 m) long with a limiting beam of 75 ft. (22.860 m)—permitted by The St. Lawrence Seaway Authority.

From Port Weller's combination drydock and building berth have come tankers, cargo vessels, ferries, fisheries research and hydrographic vessels, trawlers, buoy vessels, tugs, large pusher barges and roll-on/roll-off paper/car carriers. Facilities include a 1,200-ft. (365.760 m) outfitting berth with a 50-ton cranage capacity, shot-blasting, plate priming, numerical burning and welding shops and a sheer-leg of 120-ton capacity for shipping engines.

This artist's conception of a roll-on/rolloff paper/car carrier will soon become a reality for The Burnett Steamship Company Limited, a Port Weller customer.

The yard, which can handle prefabricated units up to 50 tons, specializes in large bulk-carrying vessels and has designed and built self-unloading vessels with sophisticated automation.

saint john shipbuilding & dry dock co., ltd.

P.O. Box 970

Saint John, New Brunswick, Canada

Tel: (506) 693-9941 Telex: 014-47243 Cable: DRYDOCK



Shipbuilding skill combines with design excellence at Saint John Shipbuilding & Dry Dock Co., Ltd. for highly diversified quality marine construction.

Saint John ships range from oceanographic and hydrographic survey vessels to passenger-vehicle ferries and ocean-going tankers. Typical is the CCGS Hudson, a veteran of a fullscale oceanographic study of the waters surrounding North and South America. One of the most modern of its type, this all-welded, specially constructed twin-screw survey vessels is 294 ft. (89.611 m) long and has a reinforced hull for operation in heavy ice.

For marine passenger-vehicle transport, Saint John's sleek Princess of Acadia accommodates up to 650 passengers and 159 automobiles and can also handle tractor, tourist trailer and truck traffic.

The Princess of Acadia, designed and built by Saint John Shipbuilding & Dry Dock Co., Ltd. to Canadian Pacific Rail requirements, provides regular passenger-vehicle service in eastern Canada's open coastal waters.

spar aerospace products ltd.

825 Caledonia Road Toronto 395, Ontario, Canada Tel: (416) 781-1571 Telex: 02-2054 Cable: SPARCAL TOR TWX: 610-491-1503



Divers know it's not how they go down but how they come up that is important. When the rate of ambient pressure reduction exceeds the rate at which gases in solution in the body can be eliminated, the result is skin irritation, the bends—or even death.

Preventing decompression sickness is the job of the pneumatic analogue decompression computer (above) developed by Spar Aerospace Products Ltd. Linked to the diver's breathing apparatus, this instrument simulates the inert gas transfer in the body. A network of pneumatic resistors and chambers transmits information to an easy-to-read dial, allowing the diver to ascend at the maximum safe rate. Even after surfacing, the lightweight computer continues to simulate the diver's inert gas release rate to permit unlimited repetitive dive exposures.

The Spar Aerospace computer can also be used for caisson workers, high-altitude flyers and in hyperbaric surgery.

star lifeline limited

1148 West 15th Street North Vancouver, British Columbia, Canada Tel: (604) 988-9911 Cable: STARLIFE



Ships' crews have no time to worry about the effectiveness of the life support equipment when disaster strikes. This is why coastal vessels the world over rely on Higgs Lifeline search initiator buoys as the most dependable insurance against marine tragedy.

Lifeline buoys are automatic anchoring devices for buoyant lifesaving equipment. A wide range of models and sizes is available.

OPERATION

- transmits an international distress radio signal to alert air/sea rescue
- emits a high intensity flashing lightautomatically releases marker dye
- automatically releases marker dye and shark repellent into the sea
- reels out 3,000 feet (914.40 m) of tension-controlled wire rope which keeps life-boats and rafts together, serves as a wreck marker for future salvage or inspection operations

The Higgs lifeline Model 3 search initiator buoy is designed for vessels 75 ft. (22.860 m) and under.

FEATURES

- constructed of rugged moulded fibreglass and foam filled for reserve buoyancy in case of puncture or crushing
- 2½-year storage life in battery
- built-in radar reflector
- removable, self-contained electronics cannister for easy maintenance
- floating mooring line for head-toweather sea anchor type ride for buoyant equipment

star shipyards limited

61 Duncan Street New Westminster, British Columbia, Canada Tel: (604) 521-0731



Sixty-four years' experience in serving the marine industry is Star Shipyards Limited's guarantee of high-quality construction which meets marine transportation needs throughout the world.

Incorporated in 1970 following the purchase of the 62-year-old Shipyard (Mercer's) Ltd. which specialized in wooden-hulled vessel construction, the company now designs and builds steel vessels of all types including tugs, barges, scows, fishing vessels and work boats. It has three marine ways (two covered), machine shop and repair facilities and a continuing program of expansion and modernization to meet present and future needs.

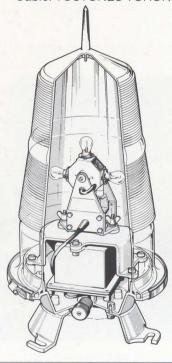
Rugged dependability is the mark of every Star Shipyard vessel. Here, the 92½-ft. (28.194 m) 1,800-hp twin screw Mercer Straits does its job for RivTow Straits Ltd., a Vancouver-based tug service.

stone-chance limited

Unit 18 1145 Bellamy Road Scarborough, Ontario, Canada

Tel: (416) 293-2760 Telex: 06-219899

Cable: TOSTONES TORONTO



Marine workers depend on safe navigational aids and Stone-Chance Limited's rugged ZP/20 Seagull plastic beacon and buoy lanterns guarantee reliable performance.

Lightweight and self contained, the ultra violet stabilized zenithal polycarbonate lens offers extreme resistance to abrasion, physical damage and crazing due to aging and climate. Standard equipment includes flasher and photoelectric switch and a choice of either filament lamps and lampchanger or discharge tube to give ranges up to 14 nautical miles.

Stone-Chance also supplies light station monitoring systems which record and report the status of remote stations accurately and efficiently.

An ultra-violet stabilized polycarbonate lens, a watertight opaque polycarbonate base with built-in precision level, a sea atmosphere-resistant aluminum alloy mounting foot—the Z/P 20 Seagull is built for long life with minimal maintenance under any marine conditions. Unit weighs 15 to 18 lbs. (6.804 to 8.165 kg).

subcom systems ltd. 153 Riverside Drive

153 Riverside Drive North Vancouver, British Columbia, Canada Tel: (604) 929-1258



Wired and wireless equipment for the ocean environment is the speciality of Subcom Systems Ltd., expert in the undersea transmission of voice and telemetry data.

The company manufactures equipment for wired and wireless diver communications, wireless submarine communications and wired recompression chambers; pingers and pinger receivers; transponders; underwater range and bearing systems; and submarine navigation systems. It also offers its international clients custom-designed fabrication.

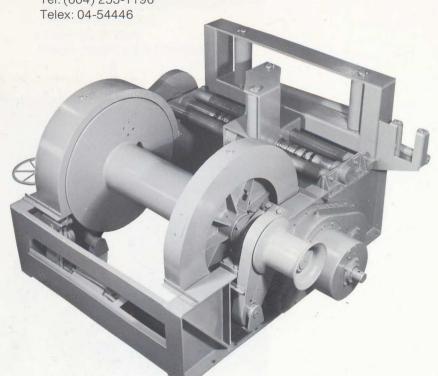
In wired diver communication equipment, Subcom offers a range of models including the 10 and 10A. These can be worn with hard hat, lightweight helmets or full face mask diving gear and can accommodate one or two divers who are continually monitored by the surface station.

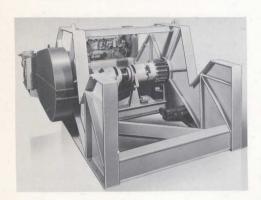
The Subcom 130 wireless is designed for medium range diver communications. The diver unit is constructed in the form of a standard stereo headset. Transducer is located on top of the stainless steel headband for maximum acoustic exposure. The surface unit is housed in rugged, corrosion-resistant cast aluminum and operated independently from a standard 12v lantern battery power supply.

Subcom's wireless diver communication systems have a built-in flexibility that equips them for increasingly sophisticated diving operations. Rugged, simple to operate and easy to maintain, these systems use pressure waterproof microphones and earphones specifically designed for below-surface work.

swann winches ltd.

1494 Powell Street Vancouver, British Columbia, Canada Tel: (604) 253-1196





Swann Winches Ltd. is a pioneer in the design and manufacture of specialized winching equipment for the marine industry.

From Swann comes a wide range of winches for oceanographic work, deep sea and local towing, fishing and oil rig supply vessels; standard anchor windlasses, and anchor, cargo, utility and general purpose winches. All are designed to co-ordinate with custom deck machinery and have a common mounting base for interchange. This allows a vessel to be outfitted for any type of operation within a few hours.

For the oceanographic industry, Swann supplies a complete range of bathytherm, coring, gravimeter and general duty oceanographic winches; for offshore drilling, which requires supply vessels, Swann offers a standard 150-ton capacity double drum anchor handling and towing winch available in a wide range of hydraulic, diesel or electric horsepowers.

Custom designed or prefabricated, Swann makes winches for every marine need. This is the heavy duty hydraulic towing winch; at lower left is the double drum waterfall winch.

Also, Swann's heavy duty standard design towing winches can accommodate all towboats from 5T to 70T Bollard pull. And for the highly diverse fishing industry, the company supplies a full line of winching and handling equipment for all sizes of trolling, seining, longlining, shrimp, prawn and bottom fish trawling operations.

undersea research ltd.

21 McMaster Avenue Toronto 100, Ontario, Canada Tel: (416) 921-1652



Undersea Research Ltd. is a research and consulting company which provides a complete information service for all ocean and undersea exploration projects anywhere in the world. The firm lists the United States Navy, the Canadian government, Canada's National Film Board, the Smithsonian Institution (U.S.), COMEX (France) and Ocean Systems Inc. (U.S., Japan, Norway, Australia) among its many international customers.

Services for man-in-sea technology include diving accident prevention and treatment; medical and life support for deep and prolonged dives; biomedical engineering advice on advanced diving systems; and human performance in manned underwater activities.

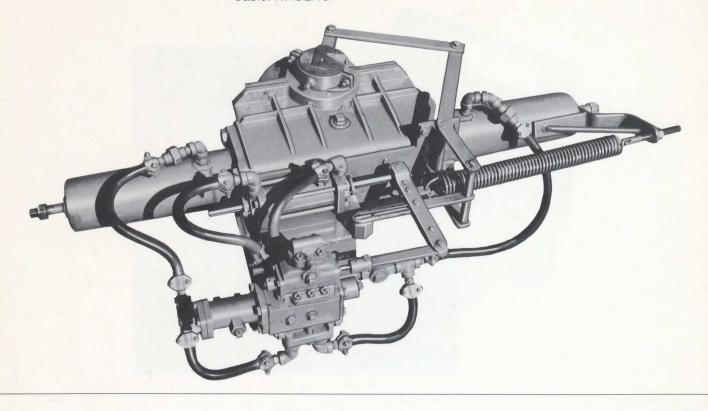
In the ocean documentation field, the company offers analysis of undersea technology for government and industry; film production, technical and non-technical reports and books, underwater photography, script writing and narration. Undersea Research also manufactures the Sea-Shell, a portable, inexpensive underwater communications booth.

Examining and improving man's relationship with the marine environment is the broad concern of Undersea Research Ltd., and this responsibility is backed by solid experience in a wide cross-section of marine activities. It was Undersea's diving consultant service that directed the salvage of this wrecked B-52 aircraft in Lake Michigan.

wagner engineering limited

1742 West 2nd Avenue Vancouver 9, British Columbia, Canada Tel: (604) 736-0451

Cable: WAGENG



Wagner Engineering's motto is perfection in hydraulic steering.

Wagner gears, the first made in North America for smaller boats, are now built to ABS and Lloyds standards for vessels up to 1,000 ft. (304.80 m) in length. A patented hydraulic telemotor control system permits quiet and effortless operation with continuously variable rudder acceleration and deceleration. In case of power failure, the steering control automatically reverts to manual hydraulic operation.

On the smaller manual hydraulic systems, the helm unit directly actuates the rudder. These manual systems are suitable for boats as small as 20 ft. (6.096 m). Wagner also manufactures electrical control systems and a wide range of automatic pilots and rudder angle indicators.

T model steering gear has full power follow-up valving mounted.

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canadian trade offices

Further information concerning Canadian ocean industry equipment and Services may be obtained from the following trade offices:

algeria

Commercial Secretary Canadian Embassy Boîte Postale 225 Grande Poste Algiers

arab republic of egypt Commercial Secretary Canadian Embassy Kasr el Doubara Post Office 6 Mohamed Fahmy El Sayed Street Garden City

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Commercial Counsellor Canadian Embassy Casilla de Correo 3898 Suipacha 1111 Buenos Aires

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Commercial Counsellor for Canada P.O. Box 3952, G.P.O. A.M.P. Building, 21st Floor Circular Quay Sydney

Commercial Counsellor for Canada Princes Gate East Tower, 17th Floor 151 Flinders Street Melbourne 3000

Commercial Counsellor Canadian High Commission Commonwealth Avenue Yarralumla 2600 Canberra ACT

austria

Commercial Counsellor Commercial Division Canadian Embassy Dr. Karl Luegerring 10 1010 Vienna

belgium

Commercial Counsellor Canadian Embassy rue de la Science, 35 B-1040 Brussels

brazil

Commercial Counsellor Canadian Embassy Caixa Postal 2164-ZC-00 Edificio Metropol Avenida Presidente Wilson 165 Rio de Janeiro

Consul and Trade Commissioner Canadian Consulate Caixa Postal 6034 Edificio Scarpa Avenida Paulista, 1765, 9 andar São Paulo

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Canadian High Commission One Grosvenor Square London, W1X OAB

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P.O. Box 1006 6 Gregory's Road Cinnamon Gardens Colombo

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Commercial Secretary Canadian Embassy Casilla 771 Edificio Ahumada, 10th Floor Santiago

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Commercial Counsellor Canadian Embassy 16 San Li Tun Peking

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Send all mail to this address: P.O. Box 1515 Nassau, Bahamas

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Commercial Secretary Canadian Embassy Chancery, Mickiewiczova 6 Prague 6

denmark

Commercial Counsellor Canadian Embassy Prinsesse Maries Állé 2 Copenhagen V

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Minister-Counsellor (Commercial) Canadian Embassy 35 Avenue Montaigne Paris 8e

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Minister-Counsellor (Commercial) Canadian Embassy Friedrich-Wilhelmstrasse 18 53 Bonn

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Consul General Canadian Consulate General Esplanade 41-47 2000 Hamburg 36

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pakistan

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Switzerland

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Commercial Secretary Canadian High Commission P.O. Box 1246 Colonial Building 72 South Quay Port-of-Spain, Trinidad

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Commercial Secretary Canadian Embassy Vali Dr. Resit Caddesi 52 Cankaya, Ankara

union of soviet socialist republics

Commercial Counsellor Canadian Embassy 23 Starokonyushenny Pereulok Moscow

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Permanent Mission of Canada to the United Nations 866 United Nations Plaza, Suite 250 New York, NY 10017

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Consul and Senior Trade Commissioner Canadian Consulate General 310 South Michigan Avenue Suite 2000 Chicago, IL 60604

Consul and Senior Trade Commissioner Canadian Consulate Illuminating Building 55 Public Square Cleveland, OH 44113

Consul and Trade Commissioner Canadian Consulate 2100 Adolphus Tower 1412 Main Street Dallas, TX 75202

Consul and Trade Commissioner Canadian Consulate 1920 First Federal Building 1001 Woodward Avenue Detroit, MI 48226

Consul and Trade Commissioner Canadian Consulate General 510 West Sixth Street Los Angeles, CA 90014

Consul and Trade Commissioner Canadian Consulate 15 South Fifth Street Minneapolis, MN 55402 Consul and Trade Commissioner Commercial Division Canadian Consulate General 2110 International Trade Mart 2 Canal Street New Orleans, LA 70130

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zaire, republic of (formerly congo) Commercial Secretary

Commercial Secretary Canadian Embassy P.O. Box 8341 Kinshasa STAMP

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Marine Division

Aerospace, Marine and Rail Branch

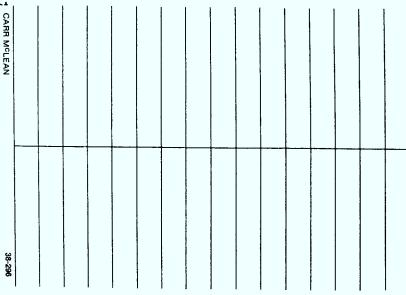
Department of Industry, Trade and Commerce

Ottawa, Onta

Canada

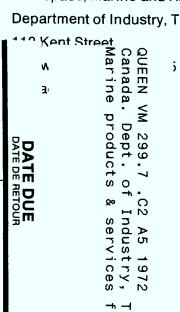
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Canada



Marine Division

Aerospace, Marine and Rail Branch
Department of Industry, Trade and Commerce



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Marine Division
Aerospace, Marine and Rail Branch
Department of Industry, Trade and Commerce
112 Kent Street
Ottawa, Ontario K1A 0H5

Marine Division

Aerospace, Marine and Rail Branch
Department of Industry, Trade and Commerce
112 Kent Street
Ottawa, Ontario K1A 0H5
Canada



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