

# DOLPHIN MK I

## Semi-submersible AUV



Dolphin Mk 1 - Monte Carlo 1987

The DOLPHIN unmanned semi-submersible was developed by International Submarine Engineering Ltd. to provide a stable sensor platform for operation in adverse sea states. Because it is a snorkeling diesel powered vehicle, DOLPHIN has significant range, speed and communication advantages over fully submersible or surface vehicles of comparative displacement.

Development of the Dolphin semi-submersible started in 1981 to provide the Canadian Hydrographic Service with a stable, high-speed platform to conduct unmanned surveys in Canada's offshore regions. The prototype vehicle was delivered to CHS in 1983. Three production survey vehicles were delivered in 1986.

In 1985, the US Navy ordered two variants of the design for testing with Navy developed payloads. These vehicles are now known as ORCA's and are operated by the US Naval Oceanographic Command and the Naval Research Laboratory in Stennis, Mississippi. In 1988, the US Navy ordered two additional Dolphin vehicles for development as remote minehunting vehicles. These vehicles are now operated by the US Navy Coastal Systems Station at Panama City, Florida and are known as Remote Minehunting Operational Prototypes (RMOPS). Two additional vehicles were built by ISE Research and Rockwell International in 1987 for ongoing R&D.

Since 1985, over 8000 hours of in-water development and testing have been undertaken by the Canadian Hydrographic Service and the navies of the United States and Canada to develop and demonstrate the vehicle's capability for hydrographic survey and remote minehunting operations. In both applications, the vehicle has proven to be a cost effective and reliable platform.

### Principal Characteristics

Length: 24 feet (7.3 m)  
 Diameter: 3.25 feet (.99m)  
 Normal Draft  
   Submerged: 15 feet (4.5m)  
 Mast Height: 15 feet (4.5m)  
 Displacement: 7000 lbs (2832 kg) fully fuelled  
 Sonar: Side scan sonar. Can carry AQS 14, AQS 20, TSM 2054 or ISE Aurora  
 Speed: 12 knots continuous with 3-knot reserve for station-keeping.  
   Towing at 600 feet - 10 knots  
 Endurance: 26 hours at 12 knots  
 Propulsion: Sabre 212 HP turbo-charged, inter-cooled marine diesel engine (rated to 150 SHP)  
 System Control: UHF narrow band FM full duplex telemetry  
 Umbilical Winch: 310m (1000 ft) of 7.62 mm (0.3") dia., 7conductor cable standard.  
   Revolution count and docking sensors.  
   Other options available.

### Vehicle Control

and Data Display:  
 - Onboard Motorola 68030 CPU  
 - Surface Windows PC

### Sensors:

- Minehunting: Vehicles have been equipped to carry the Klein 5500 single beam side scan sonar, the AN/AQS 14 side scan sonar and the Reson 8101 Seabat.
- Hydrography: Dolphin and ORCA have operated the Simrad EM 1000 and EM 950 multibeam echo sounders, as well as the Reson 8125 Seabat.



One of US Navy Dolphins conducting minehunting operations during Exercise Kernal Blitz in California - March 1995

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