

Current flight control programs include the hydromechanical rudder control actuators and dampers for the deHavilland Dash 8 and actuators for the MD-80 and Dash 7 aircraft.

In conjunction with its Electronics Subsidiary, Dowty has developed aircraft ground steering systems which comprise a microprocessor-based electronic control unit which integrates signal inputs from the rudder pedals and/or a pilot's handwheel to control the electrohydraulically actuated nosewheel. Dowty designs and manufactures the electronics, the hybrid actuation and the landing gear, providing complete systems management throughout the project. The steer-by-wire systems have been developed for deHavilland Dash 8, Canadair CL-601 and Gulfstream G-IV aircraft.

Based on its demonstrated microprocessor control technology Dowty Canada was selected by Boeing Helicopter to design, develop and produce Landing Gear Control units for the V-22 FSD program. The system performs several functions related to landing gear and door sequencing during and retraction and lowering of the gears, interfaces with the on-board computer and is equipped with built-in test equipment (BITE) for self test and maintenance activities.

KEYWORDS: Actuators; Aircraft Landing Gears; Certification Testing; Damping; Electromechanical Design; Flight Controls; Helicopter Landing Gears; Hydraulics; Hydromechanical; Integrated Systems Management; Landing Gears; Liquid Springs; Machining; Microprocessor Control Units; Motions Compensation; Shock Mitigation; Steering (Ground) Systems ; Steering Systems.

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DSMA INTERNATIONAL Inc

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HISTORY: Dilworth, Secord, Meagher and Associates Limited, established in 1952, is the parent company for a group of companies that provides high technology test facilities to the aerospace, automotive, and petroleum industries. Test facilities can be provided on either an engineering or turnkey design and supply basis.

CAPABILITY: DSMA's primary business focus lies in the engineering and turnkey supply of custom-design test and research facilities for a worldwide client base in the automotive, petroleum (fuels and lubricants), and aerospace communities.

The range of DSMA test facility projects is comprised, for the most part, of two families of wind tunnel designs:

- Aerodynamic Test Facilities – various types of wind tunnel designs to support full and reduced scale investigations into the aerodynamic (and aero-acoustic) characteristics of airborne and surface vehicles.
- Climatic Test Facilities – various types of controlled-environment wind tunnel and test chamber designs to support product development investigations involving the thermodynamics of surface vehicles at the whole-vehicle and component test levels.

In addition to these two families of facilities, DSMA has also executed test facility projects having to do with acoustics, altitude effects, hydrodynamics, icing, and boundary layer aerodynamics for aircraft, vehicles, buildings and structures.

Most recently, they have gone on to develop a significant new product to satisfy the ever increasing demand for test facility automation – these unique and proprietary software system, registered under the "talent" trade name. Talent represents the culmination of an intensive DSMA development program, initiated in large part through the creation of the DSMA Systems Engineering Division in 1982.

TALENT-based test automation systems form an integral part of almost all of the DSMA test facilities which have become operational since 1986. There are now 5 operational automotive test facilities managed by TALENT-based systems, with 7 more coming on-line in the next two years. In just a few short years, DSMA has managed to develop the TALENT test automation system from a concept into a proven and highly respected product.

AVERAGE WORK FORCE: PhD – 4
Engineers – 40
Others – 60

GROSS SALES: 1986 – \$15.2M
1987 – \$ 9.0M

PLANT SIZE: 27,000 Sq Ft

EXPERIENCE: As stated above, DSMA's experience and expertise lies in the engineering and turnkey supply of custom-design test and research facilities. They serve a worldwide market having worked on 150 test facility projects for clients in 18 countries. The company has a net capital value of \$600 Million.

KEYWORDS: Aerodynamic Test Facilities; Calibration; Climatic Test Facilities; Design Services; Engineering Services; Environmental Testing; Instrumentation; Test Facilities; Test Management; Testing (Environmental); Wind Tunnels.

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DY-4 SYSTEMS Inc

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HISTORY: DY-4 Systems Inc is a Canadian-owned manufacturer of high-performance VME bus computer modules and system level products for commercial, civil and military applications. Formed in 1979, the company has expanded rapidly based on strong engineering design and system integration talent, and a high quality manufacturing process. The company has sales offices located in Ottawa, Canada, Campbell, CA, Fountain Valley, CA, Westford, MA and Arhus, Denmark.

CAPABILITY: The board-level products, which the company has developed and manufactures to commercial as well as Mil-Spec levels, are based on the industry standard VME bus architecture using 68000/10 (16-bit), 68020 (32-bit), and 68030 processor family. The product line includes a wide selection of processor, memory and intelligent disk and tape controllers, as well as intelligent I/O controller and chassis systems, again for rugged commercial and military applications. A variety of DOS and real time operating systems, as well as high level languages are offered including Ada.

In addition to the above products, the company also provides potential customers extensive engineering capabilities ranging from system integration of chassis and board level products, to system software development. DY-4 has related experience in graphics subsystems for C3 and Air Traffic management. DY-4's manufacturing has a Quality Assurance Program equivalent to Z-299.1 MIL-Q-9858A.

AVERAGE WORK FORCE: Employees – 210

GROSS SALES: 1986 – \$10.0M
1987 – \$17.0M

PLANT SIZE: 40,000 Sq Ft

EQUIPMENT: Extensive LAN-based development systems, CAD, and semi-automatic production facilities.

EXPERIENCE: The DY-4 present customer base for commercial and military VME programs includes Raytheon (Canadian Radar Modernization Program), Magnavox (Air Traffic Control), Terma Electronik