



Engine Lubricant

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NASA COATING
TECHNOLOGY IS
INCORPORATED IN
A NOVEL
AUTOMOTIVE ENGINE



Murray United Development Corporation (MUDCO), Landing, New Jersey is a research and development firm founded by well-known inventor Jerome L. Murray, holder of more than 50 patents, among them the rotating TV antenna, electric carving knife, high speed dental drill and peristaltic heart pump. MUDCO's principal current project is a novel Rotorcam engine designed principally for automobile use but also applicable to light aircraft, boats, stationary engines or lawn mowers. *Above*, Murray (striped tie) and chief engineer Al Richey look over the specifications for a test run of the engine, which is shown in the foreground.

The Rotorcam has no crankshaft, flywheel, distributor, or water pump and it can run on virtually any kind of fuel. It is a rotary engine, only 10 inches long, with four cylinders radiating outward from a central axle like spokes on a wheel; in operation, the cylinders rotate past stationary fuel and exhaust ports and a single, centrally located spark plug. MUDCO officials say that a production version of the engine will be lighter, more

compact and cheaper to manufacture than current auto engine types and will feature cleaner exhaust emissions. Prototype engines have been extensively tested and MUDCO hopes to effect a licensing arrangement with a manufacturer in the near future.

NASA technology is incorporated in the Rotorcam engine in the form of a valve coating. MUDCO chief engineer Richey was aware of Lewis Research Center's development of a family of materials that provide engine lubrication over a wide temperature range. MUDCO selected the plasma-sprayed PS 212 as a coating for the Rotorcam's valves to eliminate the need for a liquid lubricant. PS 212 contains 70 percent chromium carbide, 15 percent silver and 15 percent barium fluoride/calcium fluoride; the carbide acts as a wear resistant matrix and the silver and fluorides serve as low and high temperature lubricants, respectively. In 1992, MUDCO tested the Rotorcam with PS 212 coated valves and found the material to be the answer to their requirement. *Below* is a PS212-coated port seal of the Rotorcam engine. •

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