

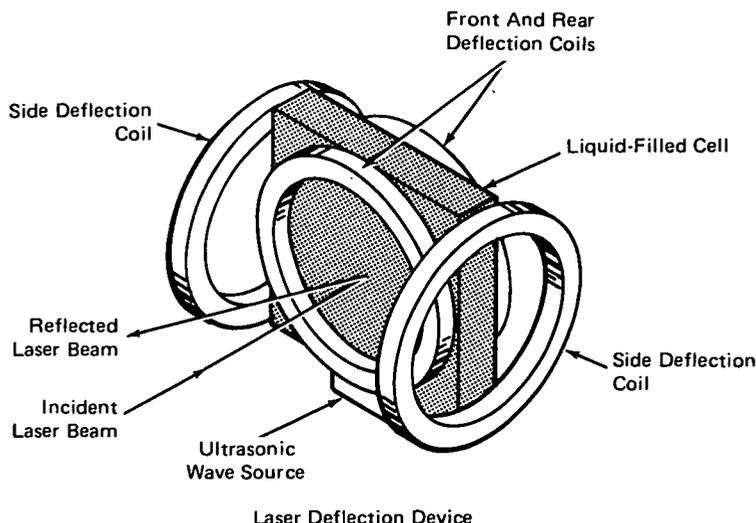
NASA TECH BRIEF

Manned Spacecraft Center



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Laser Beam Deflection Control: A Concept



Improved control of laser beam deflection angles may result from a new conceptual device. Reflectively coated magnetized particles are suspended in a liquid-filled cell surrounded by two pairs of crossed electromagnetic coils and are selectively aligned by controlling the magnetic fields.

The cell contains a low-viscosity fluid to minimize frictional losses, and low-inertia particles to permit rapid deflection of the incident beam. Each particle consists of a magnetized core located normally to the reflective surface. This assures particle alignment in a uniform direction when a magnetic field is applied. An ultrasonic energy source keeps the particles suspended in the fluid.

One process for making the particle is to chemically deposit a thin layer of silver on a flat base, deposit a magnetized powder in the presence of a normal magnetic field, and deposit another layer of silver. The base is then dissolved and the sandwich plate broken to the desired particle size.

This concept should be of interest to designers and manufacturers of electro-optical devices, systems and

support equipment. It has potential applications in laser TV and display systems, optical signal processing and optical memories.

Note:

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Code JM7
Houston, Texas 77058
Reference: B72-10411

Patent status:

No patent action is contemplated by NASA.

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