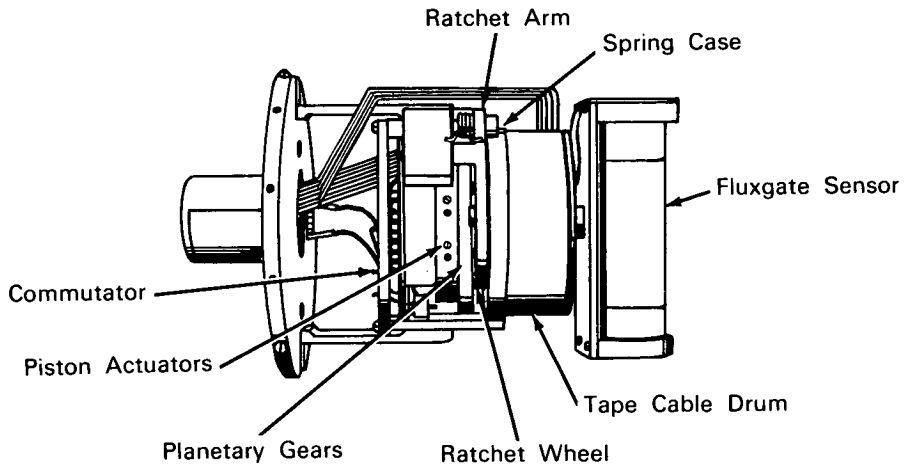
NASA TECH BRIEF

Explosives Actuate Nonmagnetic Indexing Device



The problem: A single fluxgate sensor must be rotated 180° when it is necessary to calibrate it. A conventional method of indexing a shaft is by means of a stepper motor or solenoid-actuated device, and each of these creates a magnetic field that cannot be tolerated by the sensor.

The solution: A nonmagnetic explosive-actuated indexing device.

How it's done: Operation is initated by an electrical impulse that travels through a commutator to a selected pair of explosive-actuated piston actuators. Upon firing, the device moves a ratchet arm, releasing a ratchet wheel and causes two operations to occur simultaneously. The fluxgate sensor is rotated 180° by a torsion spring and is stopped by a ratchet arm engaging the ratchet wheel. At the same time, the piston actuator disc is rotated 30°, moving the fired actuators out of the way and bringing fresh actuators into position for the next operation. The commutator shorts out all actuators not in the firing position to prevent accidental firing and furnishes information as to the position of the sensor. Signals are carried to the fluxgate by a tape cable that is housed in a drum and is wound up as the sensor is rotated.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland, 20771
Reference: B65-10017

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

Source: John P. Bauernschub, Jr.
(GSFC-237)
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