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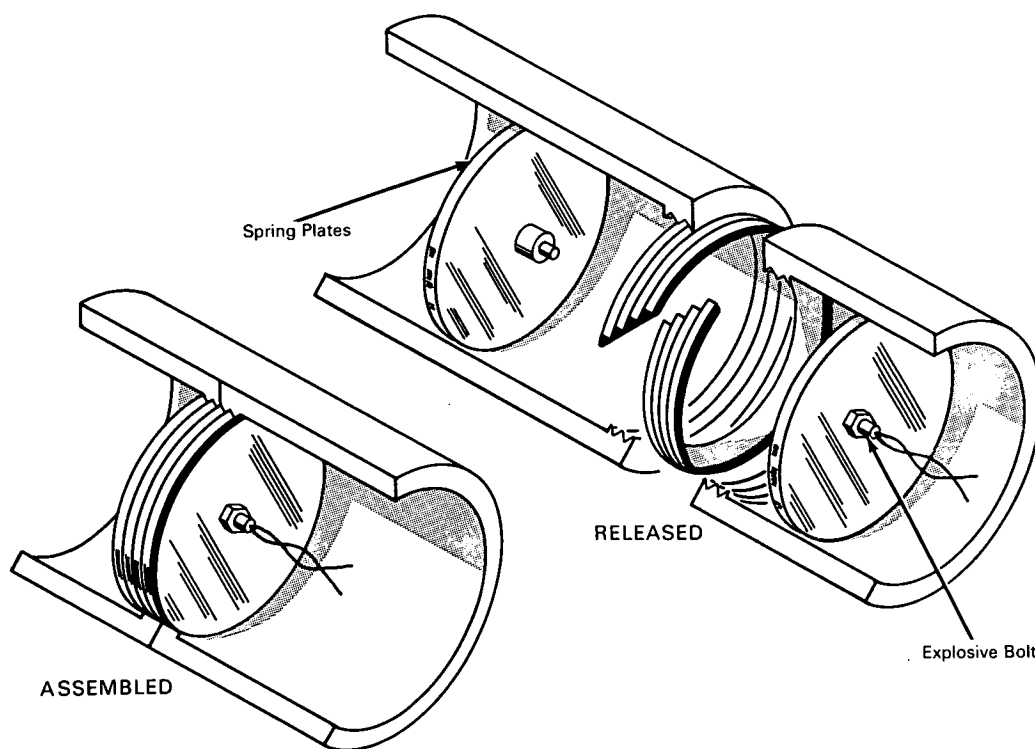
Brief 65-10383

NASA TECH BRIEF



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Threaded Split Ring Connector Separates Structural Sections



The problem: To quickly and cleanly separate two structural members by remote control. A design is needed that lends itself to various configurations and sizes of structures.

The solution: A threaded split ring connector that is retained in an expanded (captive) position by spring plates that are deflected and held by an explosive bolt. Ignition of the explosive bolt effects the separation.

How it's done: A split ring is threaded externally to mate with internal threads on the two structural

members to be joined and later separated. The split ring is designed to the proper joining diameter in its expanded mode and has a spring-like tendency to collapse to less than its expanded diameter when not constrained. The ring is held in its expanded mode by two spring plates whose rims fit into internal grooves machined in the split ring. The spring plates are deflected to an appropriate tension and retained by an explosive bolt and nut. Upon ignition of the explosive bolt, spring plate tension is released, the plates move out of

(continued overleaf)

the split ring grooves, and the ring seeks its free or unrestrained diameter, thus releasing the two structural members.

Notes:

1. This conceptual approach lends itself to any size and configuration combination in which spring action can be utilized to make the ring seek a smaller dimension upon release. Retaining media need not be limited to screw threads.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
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Reference: B65-10383

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.

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(Langley-145)