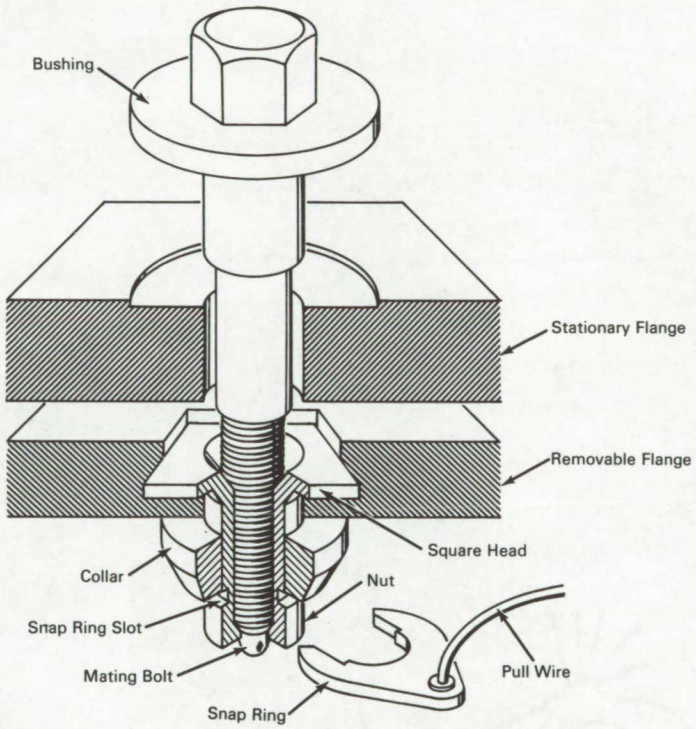
NASA TECH BRIEF

Fastener Provides for Bolt Misalignment and Quick Release of Flange



The problem:

To design a fastener that will enable (1) two large flanges to be bolted together without requiring close alignment between the bolt and bolt-hole diameters and (2) the quick release of one of the flanges under emergency conditions.

The solution:

A fastener incorporating a nut that is retained by a square head in a recess in one side of the removable flange and by a collar and snap ring on the other side of the flange.

How it's done:

The fastener consists of three components: an internally threaded nut with a square head, a collar, and a snap ring with a tab that can be connected to a pull wire. The square head of the nut, which is inserted in a matching recess in the movable flange, prevents the nut from turning when the bolt is being tightened. The diameter of the hole in the movable flange is made oversize to allow for misalignment tolerances between the nut and bolt holes in the flanges. The collar and snap ring fitted around

(continued overleaf)

the outside of the nut secure it in place and permit the removable flange to be bolted to the stationary flange. The removable flange can be quickly released in an emergency by exerting a tug on the pull wire, which removes the snap ring, thus allowing the collar to fall free. The flange can then be easily slipped down over the nut, which is held captive by the bolt.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion Office
U.S. Atomic Energy Commission
Washington, D.C., 20545
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Patent status:

No patent action is contemplated by NASA.

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