

June 1970

Brief 70-10328

NASA TECH BRIEF



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Safe/Armed Explosive Squib

The Safe/Armed Firing-Type Initiator (SAFTI) is an electroexplosive squib with improved safety features. It combines the safety features of existing electromechanical safe-arm devices with the weight and size of a standard initiator and the functioning speed of a relay. The SAFTI may be used with explosives employed industrially for construction, demolition, or excavation.

The initiator contains a small electric motor, which arms and fires the squib by rotating the primary explosive, together with the ignition bridgewire and its contact wires, into alignment with the main explosive charge and the external firing circuit. Voltage is supplied to the external firing circuit first, and the squib is ignited when a firing pulse is supplied to the electric motor coils which drive the rotor. The improved safety of this design arises because the sensitive primary explosive and bridgewire, which in other designs are susceptible to ignition by stray electric fields or electrostatic charges, are isolated from the main explosive and grounded until the much less sensitive motor

coil has been energized. In addition, a manual safety lever is provided, which allows the initiator to be locked in the safe condition, and provides a visual indication of an armed condition during testing.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
Wallops Station
Wallops Island, Virginia 23337
Reference: TSP70-10328

Patent status:

This is the invention of a NASA employee, and U.S. Patent No. 3,500,747 has been issued to him. Inquiries about obtaining license rights for its commercial development should be addressed to the inventor, Mr. L. C. Parker, at Wallops Station, Wallops Island, Va. 23337.

Source: L. C. Parker
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(XLA-10372)

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